

American Journal of Engineering Research (AJER)

e-ISSN : 2320-0847 p-ISSN : 2320-0936

Volume-02, Issue-10, pp-471-480

www.ajer.org

ResearchPaper

Open Access

19The theory of relativity and energy under the condition of electron spin elliptic orbit equation of motion

19.1 Energy under the condition of the theory of relativity electronic wave, spin orbital motion characteristics

The book section 1.1 (1.2) equations, the theory of relativity energy under the condition of electronic wave, spin orbital motion equations should be expanded to:

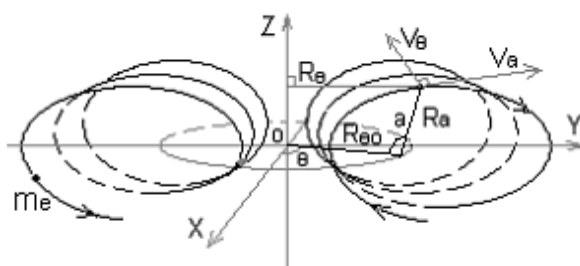


Figure 19.1 electronic waves, spin orbital motion characteristics schematic diagram

$$R_\alpha = \frac{h}{2\pi m_e v_\alpha} \tag{19.1-1}$$

$$R_\theta = \frac{h N_\theta}{2\pi m_e v_\theta} \tag{19.1-2}$$

$$R_\theta = R_{\theta 0} - R_\alpha \cos \alpha \tag{19.1-3}$$

$$\alpha = N_\alpha \theta \tag{19.1-4}$$

$$v_e = \sqrt{v_\theta^2 + v_r^2} \tag{19.1-5}$$

$$\int_{\theta 0}^{\theta 0 + \frac{2\pi}{N_\alpha}} \frac{1}{v_e} dl = \int_0^{2\pi} \frac{R_\alpha}{v_\alpha} d\alpha \tag{19.1-6}$$

And (1.2) equations is different (19.1-2) type in a spin quantum number N_θ , (19.1-5), (19.1-6) type of spin track length and spin speed will R_θ radial length dR_θ , speed v_r are included in the. Because of the fluctuation quantum number N_α , eccentricity E_α , speed v_α and electronic movement quality parameters such as m_e will be as comprehensive charge strength coefficient Z_i , spin angle θ position and change, therefore, (19.1-6) type said electronic in each wave orbit with the corresponding spin orbit $d\theta = 2\pi/N_\alpha$ on the parameters of the mean value. Simultaneous (19.1-1) ~ (19.1-3) type, reference (1.2) equations solution, make to the $R_\alpha/R_\theta = v_\theta/v_\alpha N_\theta = E_{\alpha\theta}$, to:

$$\left\{ \begin{aligned} R_\alpha &= \frac{R_{\theta 0} E_{\alpha \theta}}{1 + E_{\alpha \theta} \cos \alpha} & (19.2-1) \\ R_\theta &= \frac{R_{\theta 0}}{1 + E_{\alpha \theta} \cos \alpha} & (19.2-2) \end{aligned} \right.$$

Both are still for mutual vertical wave, spin elliptic orbit equation. By (19.1) and (19.2) equations, reference (15.8) equations solution must:

$$dl = \frac{R_{\theta 0}}{1 + E_{\alpha \theta} \cos N_\alpha \theta} \sqrt{1 + \left(\frac{N_\alpha E_{\alpha \theta} \sin N_\alpha \theta}{1 + E_{\alpha \theta} \cos N_\alpha \theta} \right)^2} d\theta \quad (19.3-1)$$

$$v_\theta = \frac{N_\theta h(1 + E_{\alpha \theta} \cos N_\alpha \theta)}{2\pi m_e R_{\theta 0}} \quad (19.3-2)$$

$$v_r = \frac{N_\theta h(N_\alpha E_{\alpha \theta} \sin N_\alpha \theta)}{2\pi m_e R_{\theta 0}} \quad (19.3-3)$$

$$v_e = v_\theta \sqrt{1 + \left(\frac{N_\alpha E_{\alpha \theta} \sin N_\alpha \theta}{1 + E_{\alpha \theta} \cos N_\alpha \theta} \right)^2} \quad (19.3-4)$$

Will (19.3) equations substitution (19.1-6) type, have to:

$$E_{\alpha \theta} = \frac{1}{\sqrt{N_\alpha N_\theta}} \quad (19.4)$$

The type that: electronic wave, spin elliptic orbit eccentricity $E_{a\theta}$ and the conditions within the nucleus phenomenon π^\pm meson fluctuation, spin vertical double elliptic orbit movement of the eccentricity are similar, but the electron spin movement should be resultant velocity v_e said. By the energy theory of relativity, the electron spins direction of the movement quality m_e should be expressed as:

$$m_e = \frac{m_{e0}}{\sqrt{1 - (v_e/c)^2}} \quad (19.5)$$

And electronic average quality \bar{m}_e corresponding average fluctuations radius \bar{R}_α , the average wave Angle $\bar{\alpha}$... Parameters, it is derived the electron spin orbital motion of the reference parameter. By (19.1-1), (19.2-1) and (19.5) type, a wave length of the orbit for L_α , reference (1.6) type solution must:

$$L_\alpha = \int_0^{2\pi} R_\alpha d\alpha = \int_0^{2\pi} \frac{R_{\theta 0} E_{\alpha \theta}}{1 + E_{\alpha \theta} \cos \alpha} d\alpha = \frac{2\pi R_{\theta 0}}{\sqrt{N_\alpha N_\theta} - 1} \quad (19.6)$$

$$\bar{m}_e = \int_0^{2\pi} \frac{m_e}{L_\alpha} dl_\alpha = \int_0^{2\pi} \frac{h R_\alpha}{2\pi R_\alpha v_\alpha L_\alpha} d\alpha = \frac{h \sqrt{N_\alpha N_\theta} - 1}{2\pi R_{\theta 0} v_\alpha} \quad (19.7)$$

Make $\bar{R}_\alpha = R_{\theta 0} E_{a\theta} / (1 + E_{a\theta} \cos \bar{\alpha})$, by the figure 19.2, (19.1-1) and (19.4), (19.5) and (19.7) type, we have:

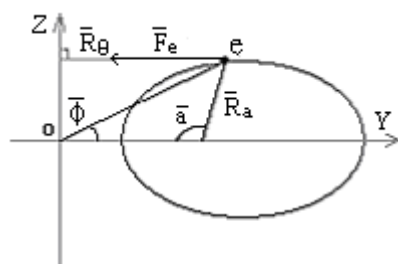


图19.2 电子波动、自旋轨道平均半径示意图

Figure 19.2 electronic waves, spin orbit mean radius schematic diagram

$$R_{\theta 0} = \frac{r_0 a_c}{\beta_\alpha} \sqrt{(N_\alpha N_\theta - 1) \left[1 - \left(\frac{v_e}{c} \right)^2 \right]} \quad (19.8-1)$$

$$\cos \bar{\alpha} = \sqrt{N_\alpha N_\theta - 1} - \sqrt{N_\alpha N_\theta} \quad (19.8-2)$$

$$\bar{R}_\theta = \frac{R_{\theta 0} \sqrt{N_\alpha N_\theta}}{\sqrt{N_\alpha N_\theta - 1}} \quad (19.8-3)$$

$$\sin \bar{\alpha} = \sqrt{1 - \cos^2 \bar{\alpha}} \quad (19.8-4)$$

The figure 19.2 shows, the electron spin orbit each fluctuation in orbit by comprehensive field average force \bar{F}_e for:

$$\bar{F}_e = \frac{-Ze^2 \cos^3 \bar{\phi}}{4\pi\epsilon_0 \bar{R}_\theta^2 \sqrt{1 - \left(\frac{v_\theta}{c} \right)^2}} \quad (19.9)$$

Among them, by (19.8) equations:

$$\cos \bar{\phi} = \frac{\bar{R}_\theta}{\sqrt{\bar{R}_\theta^2 + (\bar{R}_\alpha \sin \bar{\alpha})^2}} = \frac{1}{\sqrt{2 \sqrt{1 - \frac{1}{N_\alpha N_\theta}} - 1 + \frac{2}{N_\alpha N_\theta}}} \quad (19.10)$$

19.2 The theory of relativity energy under the condition

Of electron spins elliptic orbit equation of motion

In the multilayer, multiple atom lining, each electron in nuclear and other electronic integrated electric field under the action of charge strength factor Z_i is a variable. When the electron spins orbital motion their quality and electric field force strength will appear energy relativity speed effect. Along the electron spin orbital motion of the moment of momentum conservation law, (19.5), (19.9) and (15.1) equations, the electron spin orbital motion equations should be expanded to:

$$R_\theta = \frac{N_\theta h}{2\pi m_e v_\theta} \tag{19.11-1}$$

$$m_e (\ddot{R}_\theta - R_\theta \dot{\theta}^2) = \frac{-Z_i e^2 \cos^3 \bar{\phi}}{4\pi \epsilon_0 R_\theta^2 \sqrt{1 - (v_\theta/c)^2}} \tag{19.11-2}$$

$$m_e (R_\theta \ddot{\theta} + 2\dot{R}_\theta \dot{\theta}) = \frac{m_e}{R_\theta} \frac{d(R_\theta^2 \dot{\theta})}{dt} = 0 \tag{19.11-3}$$

$$m_e = \frac{m_{e0}}{\sqrt{1 - (v_e/c)^2}} \tag{19.11-4}$$

Reference (15.1) ~ (15.7) and all kinds of equations is derived, and the solution. We first assume that m_e , v_θ , v_e , $\cos \bar{\phi}$, Z_i , five parameters in the electronic spin orbit within a short period of dl_θ each are remain unchanged.

$$\text{Make: } R_\theta = \frac{1}{u}, \quad \text{to: } \frac{dR_\theta}{dt} = \frac{dR_\theta}{d\theta} \dot{\theta}, \quad dR_\theta = -\frac{du}{u^2}, \quad \dot{\theta} = \left(\frac{N_\theta h}{2\pi m_e}\right) u^2$$

$$\dot{R}_\theta = -\left(\frac{N_\theta h}{2\pi m_e}\right) \frac{du}{d\theta}, \quad \ddot{R}_\theta = -\left(\frac{N_\theta h}{2\pi m_e}\right)^2 u^2 \frac{du^2}{d\theta^2}$$

Will these transition results are substituting (19.11) equations:

$$\frac{du^2}{d\theta^2} + u = \frac{Z_i \cos^3 \bar{\phi}}{r_0 N_\theta^2 \sqrt{1 - (v_\theta/c)^2} \sqrt{1 - (v_e/c)^2}} = \frac{1}{R_{\theta 0}} \tag{19.12}$$

The (19.12) decline point's equation solution for: $u = C_1 \cos \theta + C_2$

Because: $\frac{du}{d\theta} = -C_1 \sin \theta$, $\frac{du^2}{d\theta^2} = -C_1 \cos \theta$, substituting (19.12) to: $C_2 = \frac{1}{R_{\theta 0}}$.

And because: $R_\theta = \frac{1}{u}$, so, the electron spin elliptic orbit equation of motion for:

$$R_\theta = \frac{1}{C_2 + C_1 \cos \theta} = \frac{R_{\theta 0}}{1 + E_\theta \cos \theta} \tag{19.13}$$

Including:

$$R_{\theta 0} = \frac{r_0 N_\theta^2 \sqrt{1 - (v_\theta/c)^2} \sqrt{1 - (v_e/c)^2}}{Z_i \cos^3 \bar{\phi}} \tag{19.14}$$

By (19.13) and (19.14) type known: the electronic each a short spin motion track dl_θ speaking, electron spin motion track is still ellipse, but it and the earth's orbit around the sun movement of the elliptic orbit is different, R_θ is m_e , v_θ , v_e , $\bar{\phi}$, Z_i parameter functions; These parameters are variable and, without doubt than many planets revolve around the sun

movement is more complicated. In the energy under the condition of the theory of relativity, the electron spin elliptic orbit equation of motion, should be called variable elliptic orbit equation.

19.3 electrons spin variable elliptic orbit equation eccentricity E_{θ} change analysis

By (19.11-1) and (19.13) and (19.14) type, electronic along the variable elliptic orbit spin movement speed v_{θ} for:

$$v_{\theta} = \frac{Z_i a_c c \cos^3 \bar{\phi} (1 + E_{\theta} \cos \theta)}{N_{\theta} \sqrt{1 - \left(\frac{v_{\theta}}{c}\right)^2}} \tag{19.15}$$

Because $v_{\theta} = \beta_{\alpha} c \sqrt{\frac{N_{\theta}}{N_{\alpha}}}$, from (19.10) type, substituting (19.15) type, get electronic wave velocity coefficient β_{α} for:

$$\beta_{\alpha} = \sqrt{\frac{N_{\alpha}}{2N_{\theta}} \left\{ 1 - \sqrt{1 - \frac{4}{N_{\theta}^2} [Z_i a_c (1 + E_{\theta} \cos \theta)]^2 \left(2 \sqrt{1 - \frac{1}{N_{\alpha} N_{\theta}}} - 1 + \frac{2}{N_{\alpha} N_{\theta}} \right)^{-3}} \right\}} \tag{19.16}$$

Make (19.16) type of N_{θ} , θ , E_{θ} , Z_i for a known determine value, substituting (19.16) type, and with (4.9) type simultaneous, can find out the location of the electron wave quantum number N_{α} , as the basis for subsequent accurate calculation.

Reference (19.3) of the equations is derived, the electron spin orbital motion of the two velocity v_{θ} , v_r , niv speed v_e respectively is:

$$v_{\theta} = \frac{N_{\theta} h (1 + E_{\theta} \cos \theta)}{2\pi m_e R_{\theta 0}} \tag{19.17-1}$$

$$v_r = \frac{N_{\theta} h E_{\theta} \sin \theta}{2\pi m_e R_{\theta 0}} \tag{19.17-2}$$

$$v_e = v_{\theta} \sqrt{1 + \left(\frac{E_{\theta} \sin \theta}{1 + E_{\theta} \cos \theta}\right)^2} \tag{19.17-3}$$

Theoretical mechanics has already proved, the planets in the solar system in the sun under the action of gravity field around the sun, the elliptic orbit movement, each planet on the track of any point, its kinetic energy and potential energy of the sun to its gravity is the same value; The value and elliptic orbit eccentricity or long shaft related, and is not to track the position. This book (15.9) ~ (15.13) type show that when Z_i for constant, electron spin velocity $v_{\theta} \ll c$, regardless of the energy theory of relativity speed effect. Electronic in nucleus as the center of gravity field, the spin around the nucleus ellipse, its kinetic energy and potential can also the sum of the same value. Only with elliptic orbit eccentricity or long shaft related, and is not to track the position. Both the theory of relativity is energy under the condition of the law of conservation of energy of the specific forms.

We just can use the law of conservation of energy, derived electronic in different N_{θ} , θ , E_{θ} , Z_i condition, to the energy theory of relativity speed along the spin variable elliptic orbit movement of energy change, and then determine the change rule of eccentricity. Calculation procedure is as follows:

1. The first set a electronic along the spin variable elliptic orbit movement N_{θ} , E_{θ} , Z_i each for a constant value, and they make $\theta_i = 0, \pi/3, \dots, \pi$ rhapsodize about it, substituting (19.16) type, and (4.9) type simultaneous, respectively and the electron in the several position fluctuations quantum number $N_{\alpha(0)}, N_{\alpha(\pi/3)}, \dots, N_{\alpha(\pi)}$ values.

2. Will $N_{a(0)}, N_{a(\pi/3)}, \dots, N_{a(\pi)}$ respectively equivalent substitution (4.9) type, and the electronic wave velocity ratio $\beta_{a(0)}, \beta_{a(\pi/3)}, \dots, \beta_{a(\pi)}$ values.

3. By the $v_\theta = \beta c \sqrt{N_\theta / N_\alpha}$, (19.17), respectively, and the equations of the electron $\theta=0, \pi/3, \dots, \pi$ position of the spin velocity v_θ, v_e values.

4. The electron spin orbit each position kinetic energy $W_{m(0)}, W_{m(\pi/3)}, \dots, W_{m(\pi)}$, the energy theory of relativity, (19.11-4) type, have to:

$$W_{m(\theta)} = \frac{m_{e0}c^2}{e} \left[\frac{1}{\sqrt{1 - \left(\frac{v_{\theta(\theta)}}{c}\right)^2}} - 1 \right] \tag{19.18}$$

5. The electron spin orbit a position $\theta = 0, \pi/3, \pi$, the potential can $W_{e(\theta)}$, by the (19.9) and (19.10), (19.13) and (19.14), type to:

$$W_{e(\theta)} = \frac{-Z_i e^2 \cos \bar{\phi}}{4\pi\epsilon_0 R_\theta \sqrt{1 - \left(\frac{v_{\theta(\theta)}}{c}\right)^2}} = \frac{-Z_i^2 e^2 \cos^4 \bar{\phi} (1 + E_\theta \cos \theta)}{4\pi\epsilon_0 r_0 N_\theta^2 \left[1 - \left(\frac{v_{\theta(\theta)}}{c}\right)^2 \right] \sqrt{1 - \left(\frac{v_{e(\theta)}}{c}\right)^2}} \tag{19.19}$$

6. Reference (15.9) ~ (15.13) type the deduced, electronic in the orbit position of ionization energy $\Delta W_{e(\theta)}$ should be constant:

$$\Delta W_{e(\theta)} = W_{m(\theta)} + W_{e(\theta)} \tag{19.20}$$

Make $N_{\theta 1} = 1$, Z_i are 1, 10, 30, 50, 70, 90, in each group set point, then make E_θ, θ for a set of values, in turn, substituting 1 ~ 6 calculation procedure, the result see table 19.1.

Electron spin variable elliptic orbit eccentricity, ionization energy change results table table 19.1

$E_{\theta i}$	0	$\pi/3$	$2\pi/3$	π
$Z_i=1$		$N_\theta=1$		
0.0	13.6058	13.6058	13.6058	13.6058
0.1	13.4700	13.4699	13.4698	13.4697
0.5	10.2064	10.2053	10.2044	10.2042
$Z_i=10$		$N_\theta=1$		
0.0	1362.38	1362.38	1362.38	1362.38
0.1	1350.55	1349.66	1348.21	1347.63
0.5	1041.08	1030.73	1021.44	1020.09
$Z_i=30$		$N_\theta=1$		
0.0	12401.5	12401.5	12401.5	12401.5
0.1	12409.5	12344.4	12235.2	12190.3
0.5	10550.1	9916.19	9268.97	9158.87
$Z_i=50$		$N_\theta=1$		
0.0	35385.9	35385.9	35385.9	35385.9

0.1	35972.5	35510.1	34713.3	34374.7
0.5	34522.6	30543.0	26213.4	25354.3
$Z_i=70$		$N_0=1$		
0.0	72997.0	72997.0	72997.0	72997.0
0.1	76013.9	74146.7	70954.0	69595.9
0.5	87961.3	69487.8	52980.3	49576.5
$Z_i=90$		$N_0=1$		
0.0	132556	132556	132556	132556
0.1	144762	137691	126666	122266
0.5		155929	91931	82024
Note	The blank space part can't solve, energy units: ev			

By table 19.1 see: $E_0=0$ is the only solution, so, in multilayer, multiple electronic atomic internal, Z_i space change rule will determine electron spin orbit parameters change. To $Z_i \leq 10$ atomic electrons to the energy theory of relativity condition calculation error is very small. Electron spin elliptic orbit of eccentricity is allowed to have certain value range. But the total energy must be completely conservation, (front electron spin movement and lateral rotary motion of the magnetic field energy were not involved in calculation).

Comprehensive analysis of the chapter 15 ~ 19 and the calculated results are compared, can see the atomic internal electronic spin orbit parameters change rule: 1. Spin quantum number N_{0i} surface take 1, 1.5, and gradually ionization process, $N_{0i}=1 \rightarrow \infty$, internal all take $N_{0i}=1, 2$. Atomic inner electron spin elliptic orbit eccentricity $E_0=0$, time and energy in the outer surface of the theory of relativity spin movement similar premise condition E_0 can be in between 0 ~ 1 move; 3. Atomic layer within the electronic must be synchronous spin movement, only in this way, each layer inside each electronic, \bar{Z}_i, E_0 values in the lining of the electronic shielding effect to maintain constant, spin ellipse to set up, each electronic integrated electric field force of the force to the spin orbital motion of the radius vector pointing to nuclear center, conservation of angular momentum of the quantization fluctuation, spin orbital motion can be established; 4. Atomic surface electron pair inner electron electric field force can be neglected, the inner surface of the electronic to electronic field stress shielding effect can make the surface electron spin elliptic orbit surface of revolution into small in the large flow line surface of revolution "electron clouds". Before 3 rules for subsequent atomic inner electron spin orbit parameter calculation and provides a convenient.

20 Atom in K, L layer electronic wave, spin orbital motion characteristics and parameters are calculated

20.1 Atoms in K, L layer electronic X ray properties and characteristics

The laboratory has accurate determination of the atom in K, L layer electronic X-ray critical absorption and emission energy. To $_{100}\text{Fm}$, $_{40}\text{Zr}$ element, for example, see table 20.1.

Atom in K, L layer electronic X-ray critical absorption and emission can scale (ev) table 20.1

$_{100}\text{Fm}$	L layer level		K layer level	K layer within the layer electronic ionization energy level difference			
K_{ab}			141510				
$K_{\beta 2}$			140122	1388			
$K_{\beta 1}$			136075	5435	4047		
K_{a1}			120598	20912	19524	15477	
K_{a2}			114926	26584	25196	21149	5672
L layer level	27503	16379		20912	19879	16113	
				26584	25475	21785	
$_{40}\text{Zr}$	L layer level		K layer level	K layer within the layer electronic ionization energy level difference			
K_{ab}			17998				
$K_{\beta 2}$			17969	29			
$K_{\beta 1}$			17666	332	303		
K_{a1}			15774	2224	2195	1892	
K_{a2}			15690	2308	2279	1976	84
L layer level	2547	2042		2220	2219	2040	
				2305	2302	2124	

Similar to the hydrogen atom spectrum calculation and atomic energy level characteristics, temporary not consider nucleus and each layer between the various electronic electric and magnetic fields interaction on the influence of various electronic ionization energy level. Atomic inner electron X-ray critical absorption and emission energy should be regarded as directly from high energy X-ray photons will K, L layer electronic one-time collision excitation emission to atomic outside energy, or external static electronic direct transition to K, L layers of electron spin orbit emit a photon energy. On behalf of the K, L layer in each layer of the electron spin orbital motion of their original ionization energy. Table 20.1 right L layer 6 X-ray level is K layer in each layer of the electron spin orbit stimulated or transition between the absorption and emission X-ray energy. The left 2 energy value, almost equal, the other 4 smaller, the system of $(1 \sim 7)/100$, obviously, they should be the electron excitation, transition process exists in other forms of energy conversion and mutual electric, magnetic field effects on the level of influence. The left column of table 20.1 2 L layer electronic ray level should be truly representative of the intraformational 2 electronic original ionization energy.

20.2 Atoms in K, L layer electronic wave, spin orbital motion characteristics and parameters are calculated

20.2.1 Atomic inner K, L layer electronic wave, spin orbit parameters are calculated

Because the whole atom in each layer, various electronic and electric and magnetic fields between nuclear interaction, and to make every layer, each layer of each electronic along the fluctuation, spin orbital motion of charge strength coefficient value Z_i is always a fairly complex variable. The author have not collected within the atom each electronic integrated

magnetic moment of the experimental value of parameters, the calculation of magnetic energy also lack basis, so, this chapter will not enter all along the electron spin orbital motion interaction of the magnetic field energy, inside and outside layer electronic shielding effect. First by the atomic K, L layer in the layer of the electronic spin orbit excitation, transition when absorption or emission X-ray photon energy to simulation the layer electronic charge function average strength factor \bar{Z}_i , corresponding the fluctuation, spin orbit parameters.

Because the atoms in K, L layer electronic spin orbit, $N_\theta = 1$, $v_\theta = v_e$, $E_\theta = 0$, so relevant parameters calculation formula can be simplified. By (9.16) type, electronic wave velocity ratio β_a is:

$$\beta_\alpha = \sqrt{\frac{N_\alpha}{2} \left\{ 1 - \sqrt{1 - (2\bar{Z}_i a_c)^2 \left(2\sqrt{1 - \frac{1}{N_\alpha}} - 1 + \frac{2}{N_\alpha} \right)^{-3}} \right\}} \quad (20.1)$$

Will (20.1) and (4.9) type group stand:

$$\begin{aligned} & \sqrt{\frac{N_\alpha}{2} \left[1 - \sqrt{1 - (2\bar{Z}_i a_c)^2 \left(2\sqrt{1 - \frac{1}{N_\alpha}} - 1 + \frac{2}{N_\alpha} \right)^{-3}} \right]} \\ &= \frac{\sqrt{32N_\alpha + a_c^2(N_\alpha - 1)} - a_c \sqrt{N_\alpha - 1}}{4\sqrt{2N_\alpha}} \end{aligned} \quad (20.2)$$

The theory of relativity and energy (19.5) type, electronic along the spin orbital motion of the kinetic energy \bar{W}_m for:

$$\bar{W}_m = \frac{m_{e0}c^2}{e} \left\{ \left[1 - \left(\frac{v_\theta}{c} \right)^2 \right]^{-0.5} - 1 \right\} \quad (20.3)$$

The diagram (19.2) and (19.10) type:

$$\cos \bar{\phi} = \left(2\sqrt{1 - \frac{1}{N_\alpha}} - 1 + \frac{2}{N_\alpha} \right)^{-0.5} \quad (20.4)$$

By (19.19) type, electronic spin orbital motion along the average potential can \bar{W}_e for:

$$\bar{W}_e = \frac{\bar{Z}_i^2 e^2 \cos^4 \bar{\phi}}{4\pi\epsilon_0 r_0 \left[1 - \left(\frac{v_\theta}{c} \right)^2 \right]^{1.5}} \quad (20.5)$$

Electronic ionization energy $\Delta\bar{W}_e$ for:

$$\Delta\bar{W}_e = \bar{W}_e - \bar{W}_m \quad (20.6)$$

By (19.8-1) type, electronic wave, spin orbit parameter $R_{\theta 0}$ for:

$$R_{\theta 0} = \frac{a_c r_0}{\beta_\alpha} \sqrt{(N_\alpha - 1) \left[1 - \left(\frac{v_\theta}{c} \right)^2 \right]} \quad (20.7)$$

By (19.2) equations, make $a=0,\pi$, rhapsodize about it, electronic wave, spin orbit radius of inner and outer side are:

$$\begin{cases} R_{\theta} = \frac{R_{\theta 0} \sqrt{N_{\alpha}}}{\sqrt{N_{\alpha} \pm 1}} & (20.8 - 1) \\ R_{\alpha} = \frac{R_{\theta 0}}{\sqrt{N_{\alpha} \pm 1}} & (20.8 - 2) \end{cases}$$

With $_{100}\text{Fm}$ atom, for example, the atom in K, L layer electronic wave, spin orbit parameter calculation program is as follows:

1. Set $\bar{Z}_i = 95$, substituting (20.2) type, to: $N_a = 3.038122032$.
2. Will N_a value substitution (4.9) type, $\beta_a = 0.998943977$.
3. For $v_{\theta}/c = \beta_{\alpha} / \sqrt{N_{\alpha}}$, will $\bar{Z}_i, N_a, \beta_a, \beta_{\alpha} / \sqrt{N_{\alpha}}$ values respectively substitution (20.3) ~ (20.6) type, get electronic ionization energy $\Delta\bar{W}_e = 152955.3887\text{ev}$, than the experimental value 141510ev slightly big.
4. Adjust \bar{Z}_i value range, repeat 1 ~ 3 calculation procedure until $\Delta\bar{W}_e = 141510\text{ ev}$ so far.

$_{100}\text{Fm}$ atomic inner K, L layer electronic wave, spin orbit parameter calculation results table (unit: ev, A°) table 20.2

level parameters	K_{ab}	$K_{\beta 2}$	$K_{\beta 1}$	K_{a1}	K_{a2}	L_{Iab}	L_{a1}
$\Delta\bar{W}_{ei}$	141510	140122	136075	120598	114926	27503	16379
\bar{Z}_i	92.28574	91.94110	90.91620	86.70329	85.03313	44.29352	34.40190
N_a	3.200082	3.221373	3.285732	3.568394	3.689546	11.17994	17.58303
$R_{\theta(0)}$	0.003051	0.003074	0.003143	0.003438	0.003561	0.009062	0.012347
$R_{\theta(\pi)}$	0.010786	0.010809	0.010878	0.011173	0.011296	0.016796	0.020081
$R_{a(0)}$	0.001706	0.001713	0.001734	0.001820	0.001854	0.002710	0.002946
$R_{a(\pi)}$	0.006030	0.006022	0.006001	0.005915	0.005881	0.005023	0.004789

5. Will the final, $\bar{Z}_i, N_a, \beta_a, \beta_{\alpha} / \sqrt{N_{\alpha}}$ values respectively substitution (20.7) type and (20.8) equations, get electronic wave, spin orbit parameter table 20.2. Other atoms simulation instance sees table 20.3, table 20.4, and table 20.5.

$_{80}\text{Hg}$ atomic inner K, L layer electronic wave, spin orbit parameter calculation results table (unit: ev, A°) table 20.3

level parameters	K_{ab}	$K_{\beta 2}$	$K_{\beta 1}$	K_{a1}	K_{a2}	L_{Iab}	L_{a1}
$\Delta\bar{W}_{ei}$	83106	82526	80258	70821	68894	14841	9987
\bar{Z}_i	74.1331	73.9062	73.0072	69.05780	68.2065	32.7747	26.9563
N_a	9	1	3	4	6	3	4
	4.65070	4.67464	4.77136	5.236431	5.34621	19.2128	27.6180
	7	0	2		2	5	7

$R_{\theta(0)}$	0.00447 3	0.00449 4	0.00458 0	0.004982 0.012716	0.00507 4	0.01308 2	0.01645 4
$R_{\theta(\pi)}$	0.01220 7	0.01222 8	0.01231 4	0.002177 0.005557	0.01280 9	0.02081 5	0.02418 7
$R_{a(0)}$	0.00207 4	0.00207 9	0.00209 7		0.00219 5	0.00298 5	0.00313 1
$R_{a(\pi)}$	0.00566 0	0.00565 6	0.00563 8		0.00554 0	0.00474 9	0.00460 2

If the reference to the conditions within the nucleus π^\pm meson fluctuation quantum number value scope of N_a , N_a also should be simple fraction or natural number. Table 20.2 ~ in table 20.5, \bar{Z}_i , N_a value is regardless of the electron spin direction integrated magnetic field energy, each layer of many electronic integrated functions of the value. Because of the magnetic field energy than electric energy, electronic kinetic energy much smaller, so table 20.2 ~ table 20.5 the \bar{Z}_i value is close to the real value.

${}_{60}\text{Nd}$ atomic inner K, L layer electronic wave, spin orbit parameter calculation results table (unit: ev, A°) table 20.4

level parameters	K_{ab}	$K_{\beta 2}$	$K_{\beta 1}$	K_{a1}	K_{a2}	L_{Iab}	L_{a1}
$\Delta\bar{W}_{ei}$	43571	43298	42269	37359	36845	7144	5230
\bar{Z}_i	55.19302	55.02962	54.40810	51.31143	50.97375	22.83278	19.55529
N_a	7.639382	7.678098	7.828379	8.655758	8.754746	37.81120	50.89352
$R_{\theta(0)}$	0.006821	0.006848	0.006952	0.007510	0.007575	0.019910	0.023718
$R_{\theta(\pi)}$	0.014555	0.014582	0.014686	0.015244	0.015308	0.027643	0.031451
$R_{a(0)}$	0.002468	0.002471	0.002485	0.002553	0.002560	0.003238	0.003325
$R_{a(\pi)}$	0.005266	0.005262	0.005249	0.005181	0.005174	0.004495	0.004409

From table 20.2 to table 20.5 K, L layer electronic spin orbit space distribution range, we can see that: 1. When nuclear charge number $Z_i \leq 80$, K layer and L layer electronic wave, spin orbit no overlap, there are certain interval; 2. K, L layer and layer within the electronic wave, spin orbit of spiral ring surrounding space most overlap, staggered together. The former side reflects the stable nuclide $Z_i \leq 83$; The latter shows in the electronic electric dipole rotation radius coefficient K_r is 10^4 order of magnitude to $K_r \bar{R}_\alpha$ value as electron particle radius, plus with the charge phase rejection effect, each sublayer electronic symmetric synchronous movement, so, in the electronic tiny fluctuation, spin orbit overlap zone, dozens of electronic can still like highway overpass the same flow separately, never collide each other.

20.2.2 Electron spin elliptic orbit motion characteristics summary

Atomic inner electron should be paired movement, spin direction completely symmetrical same, fluctuation in opposite directions. That is, each pair of electronic wave, spin orbital motion are made by two waves, spin relative nuclear center completely symmetrical, spin cycle are T/2 (phase difference of π) of the orbit. In this way, we can be sure, paired electron wave motion direction magnetic field should cancel each other out.

By the law of conservation of energy and energy under the condition of the theory of relativity derived electron spin elliptic orbit equation of motion, elliptic orbit of eccentricity $E_0 = 0$, into circular orbit. It is actually the conditions within the nucleus to the particle spiral ring orbit characteristics regression, should be fully established, correct. The energy theory of relativity is derived under the condition of the electron spin elliptic orbit equation, although $0 \leq$

$E_0 \leq 1$, relative total law of conservation of energy, it is only a result of approximation. When we will electronic along the elliptic orbit revolved additional lateral movement speed, kinetic energy, magnetic energy is taken into account, we have every reason to believe that: electronic energy relativity kinetic energy, relative nuclear power field, integrated the electric potential energy, magnetic energy summation also fully conform to the general law of conservation of energy.

Decided to atomic, molecular chemical properties, physical characteristics are atomic outer electron spin, additional lateral ellipsoid surface of revolution of the orbital motion characteristics. Inner X fluorescence ray spectrum feature only as a measurement of the atomic spectrum identification. Rail internal conversion in nuclear physics has been discussed. Table 20.2 ~ 20.5 table data in each sublayer is electronic integrated action of simulation parameters. Make sure all the layers of electronic number, wave quantum number; it is necessary to consider mutual shielding effect, and simultaneous equations using simulation method. Because of the time and the author hand calculation tool limit, no longer continue to study.

21 Infinite eternal cosmology summaries

21.1 Hot big bang cosmology question form

21.1.1 Thermal explosion according to the formation of cosmology

The universe is how to form evolution? How is the end? Modern international day literati agree that the universe was created by a super high temperature, high density, and high can mathematical singularity in the formation of hot big bang. I support this theory based on observation are:

1. The spectrum red shift of Hubble's law think the universe is still in a state of inflation.
2. The existing same-sex 2.73 K blackbody spectrum cosmic background radiation.
3. Observation to helium, deuterium elements of the cosmic abundance than star internal reaction formation rate.
4. The age of the universe no more than 20 billion years.

21.1.2 Problems

The evolution of the universe is essentially stars, black holes, galaxy formation, evolution process, main performance for nuclear reaction evolution process. By the statistical theory of quantum mechanics theory system, cannot provide particle reaction and evolution of the basic physical model and theoretical support. It is hard to imagine, in order to looking for fifty years is still missing of so-called mixed number charge "quark" as the universe is the leading role of $0 \sim 7 \times 10^5$ seconds according to what? Before the big bang mathematical singularity physical meaning, model features what look? Our research is a catch-all in the universe of the most basic, real physical model, the motion characteristics and evolution law, not abstract mathematics new concept. The latter can only as help us to carry on the analysis and calculation of the auxiliary tool. This is the quantum statistical theory, the universe academic force physics and relativity in the field of widespread, in violation of the basic laws of physics, conventional and philosophy the common sense. Inevitably leads to the observation, sorting, research material, data selection, analysis and interpretation in the process of human bias. Control the Hubble's law before and after the advent of galaxy, the universe form evolution theory, the literature of stars, the galaxy's actual observation data analysis, and interpretation and choice of difference will understand.

Observations show that the amount of dark matter in the universe for visual Ming 10 times more than the amount of matter, the general cluster, up to 100 ~ 300 times. What they with kind of state of matter there? How in the universe space distribution and evolution? We have observed from various types of galaxy formation and evolution to death the whole process, is gradually expansion or contraction of gradually? Active galactic nuclei, quasars huge energy radiation is how form? Spectrum red shift, especially whether high-redshift is cosmology sex...? The nature of the universal problems are not effectively resolved, the universe was formed in

the evolution of research will be hot big bang form cosmology identified as the standard model and from any talk about?

Moreover, the thermal explosion formation cosmological 4 points according to the observation is worth questioning:

1. Spectrum red shift can only show the photon in the propagation of energy loss, Doppler redshift is not the only explanation, especially the quasar supernormal value red shift, some scholars have put forward question.

2. Isotropic 2.73 K blackbody spectrum cosmic background microwave radiation is the challenge Hubble red shift law, denial of the universe's expansion strong evidence. Because the blackbody spectrum background in the microwave radiation energy is lost from other aspects necessary to obtain the supplementary to maintaining the balance. Since as black body, it can radiation all frequency, energy electromagnetic wave, of course, also can part absorbed all frequency, energy of electromagnetic energy, and the photon is the electromagnetic wave. By the law of conservation of energy can corollary: it will inevitably lead to spectrum red shift with distance into direct ratio increases, (see the next chapter).

3. Observation to helium, deuterium two elements of the cosmic abundance than star internal reaction formation rate also can be used as the basis. Helium, deuterium two elements in the evolution of stars process abundance is constantly changing and increasing. At present the scientific community about galaxy formation and evolution process of the knowledge level, who can determine the formation of the sun or other stars of the nebula, is after several generation of stars after combustion evolution explosion left residual nebula? We are now in the solar system; only know meteorites nearby galaxy, stars, nebulae visual Ming material general composition. Don't know stellar debris neutron star, a White Dwarf, brown dwarfs, black dwarf and black hole content, distribution range. More do not know which accounts for more than 90% of the universe for dark matter, now and in the future, the composition of the internal structure is how formation, evolution. At the present level of understanding will detect helium, deuterium element abundance as the big bang universe form the original abundance based on reliability and have how old?

4. Age of the universe not more than 20 billion years, recently more unusual academic reports, he said after observation research that age of the universe for 13.6 billion years, the error of 0.2%.

At present academia that age of the universe basically has 3 kinds of methods, respectively the evaluation:

A. by "Hubble's law" certain constant H_0 , calculate age of the universe, both the Hubble age T, such as:

$H_0=50$	$T=19.7$ billion years
$H_0=75$	$T=14.8$ billion years
$H_0=100$	$T=9.8$ billion years

First of all, the Hubble constant is artificial difficult to determine value, review again the Hubble constant change history, to evaluate the Hubble's law and the reliability of the age of the universe is helpful:

In 1929, the Hubble I first given $H_0 = 500$ km/sMpc (behind the unit is abbreviated).

In 1936, the Hubble considering the interstellar extinction influence, will be constant to $H_0 = 526$. Since then, the number has been considered to be correct. The reason is the age of the universe is $H_0^{-1} = 1.84$ billion, and when using radioactive method determination in the crust of ancient rock age 1.8 billion years is consistent.

1945 years later, my American journey astronomers (Baade), observed M31 and neighboring galaxy, there are two kinds of cepheid variable stars, both classical cepheid variable and Lyra "RR type made father" variable. The former light than the latter, thus derived Magellanic cloud distance from 750000 light years to 1.5 million light-years away, the Hubble constant is to $H_0 = 260$.

In 1956, Humason Mayall and Sandage have summarized the 620 galaxy redshift data, maximum $Z = 0.202$, think: $H_0 = 180$.

Since 1956, Sandage in the system measurement Hubble constant, the first found Hubble used bright stars in the spiral galaxy is actually "H II area", not a single star, both differ 1.^m8. magnitude. The correction, the Hubble constant into $H_0 = 75$.

The Hubble constant recently a number of observations

Table 21.1 (5) (the same below)

H_0 (Km / sMpc)	Measuring method	獻 literature
86±18	Virgin group of planetary nebula	Mende`z et al.(1993)
84±4	F—T method	Ford et al.(1996)
81±8	The virgin group cepheid variable stars	Van den Bergh (1995a)
80±12	SB Ups and downs	Jacoby et al. (1992)
78±11	In M87 globular clusters	Whitmore et al. (1995)
75±8	Day furnace and planetary nebula	McMillan et al. (1993)
70±13	Virgin group of supernova	Della Valle & Livio (1995)
60 或 82	Lens 0957+561	Grogin & Narayan (1995)
55±17	S – Z method	Birkinshaw & Hughes (1994)
55 ~ 60	SNe Ia (In theory)	Van den Bergh (1995b)
52±9	SNe Ia (1937C)	Saha et al. (1994)
52±8	SNe Ia (1972E)	Saha et al. (1995)
43±11	Galaxy diameter	Sandage (1993)
70±10	Cepheid variable	Freedman (1996)
55±10	Cepheid variable	Tamman (1996)
64±13	Gravitational lens	Tumer (1997)

In 1961, Sandage in the United States at the Berkeley IAU conference announced that summarizes all kinds of measurement results, H_0 should be 75~113, the most probable value $H_0 = 98 \pm 15$. Since then, generally take $H_0 = 100$.

1970 years later, led by the United States Sandage measuring group after more system, precise measurement confirmed $H_0 = 50.3 \pm 4.3$. In France DE, Vacualear led another observation that the $H_0 = 100 \pm 10$. The two groups at day on behalf of the literati observation Hubble constant of the highest level value are still nearly doubled.

1990 years later, with the Hubble space telescope to heaven, and further improve the measurement method, and then define $H_0 = 75 \pm 8$, equal to compromise in take value.

1990 years later representative measurement results see table 21.1.

By the Hubble constant ten times as many as in the process of change within it is not difficult to see that it is the scientific community based on measurement, prediction of rock, meteorites and stars age continuously revised, although day literati finally tend to take the Hubble constant $H_0 = 75 \pm 8$, still can't explain age of the universe. Because of the age of the globular clusters in the Milky Way galaxy in 12 billion, individual 17 billion years, still more for the present flat universe, the age of only $2/3H_0 = 9.87$ billion. This description: Hubble's law and the contradiction between the age of the universe has not harmonic.

B. the "solar system" within the rock, meteorites determination of radioactive element age

The half-life of radioactive elements by determination of elements of the age, first of all have a condition assumptions: rock just generation, mother nuclear element content is 100%, the son nuclear element content is 0.0%. Through the determination of radioactive decay after the mother nucleus, daughter nucleus related elements content ratio, again by determination of this element radioactive decay process the half-life of calculation. So, this age should is maximum. If use uranium - lead method:

$$\frac{Pb^{206}}{U^{238}} = e^{\lambda t} - 1 \quad (21.1)$$

This measured the earth, moon rocks in the solar system, the oldest meteorites are over the age of 4.5 billion years.

If the supernova explosion by rich neutron conditions U_0^{235} formation, U_0^{238} theory ratio is 1.24, now measure for 1/140, according to the ratio of the two elements of the radioactive half-life must:

$$\frac{U^{235}}{U^{238}} = \frac{U_0^{235}}{U_0^{238}} e^{-(\lambda_{235} - \lambda_{238}) t} \quad (21.2)$$

This is the age for 8.9 billion years.

We must face the fact that in the Milky Way galaxy slewing has great quality and the blue stars are forming. The famous Taurus crab nebula, A.D. that 1054 a supernova explosion formation. We are sure the inner solar system meteorites mainly from 8.9 billion years ago a supernova explosion residual fragments thing, but, as a spiral galaxy's disk family stars, 8.9 billion years ago the supernova explosion is the Milky Way in the family of double stars which generation of stars? The 8.9 billion years in the Milky Way or the age of the universe should belong to which time? Modern day literati can give confirmation?

C. the globular clusters LuoHe diagram decision age of the universe

Use of globular cluster LuoHe diagram method to get the most ancient globular cluster age of 17 billion years, see figure 21.1. If the globular cluster overall dynamics process is also taken into consideration, both globular cluster from formation to collapse, total about 20 billion years of age. This has been seen as a globular clusters in the universe of <<10% only visual Ming material composition, 17 billion more than the Hubble's law and the age of the universe, 13.6 billion more than the universe as a flat in 9.87 billion.

From LuoHe diagram, (21.2) type, the solar system: the meteorite formation age of 8.9 billion years, as the life of the star is about 13 billion years. At present the sun about 4.5 billion years of age. From the nebula material, meteorites origin to end the nuclear burning stars form a White Dwarf, total life of about 17.4 billion years. Therefore, we can make the reasoning: if in the Milky Way to see the sun in the quality and close to the White Dwarf, the age should be more than 17 billion years. If meet the quality for the mass of the sun only half of the White Dwarf, the age should be more than 24 billion years. Along with the White Dwarf energy radiation gradually cooling becomes invisible black dwarf or dark matter, then, these stars are remains of the age and should be how to calculate?

To sum up, the Hubble's law to determine the age of the universe has no meaning. By the evolution of stars LuoHe chart to determine the most ancient of globular clusters age also represents only the visible surface of the cluster of stars age. Also not globular cluster center plays a main role the gravitational field of the black hole age, more is not the galaxy's age. You can be sure: the universe accounts for more than 90% of the dark matter is death star, globular cluster wreckage, even older or dead the whole galaxy remains.

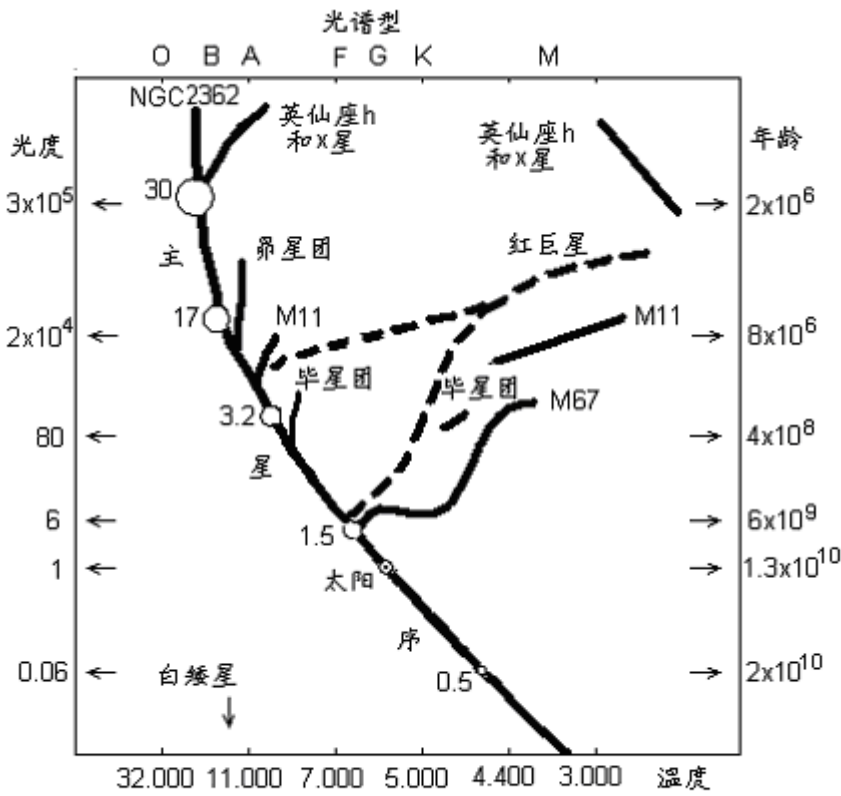


图21.1 各种星团的赫罗图
 该图主序星上的数字代表转向时的恒星质量，以太阳质量为单位

Figure 21.1 all kinds of cluster of Hector ROM diagram

(The main sequence star on the figure of the representative to the star quality to the mass of the sun as the unit)

History has such lessons:

In 1922, Kapteyn for the first time found in the Milky Way there is dark matter. In 1933, Zwicky with system photometry and virial movement law of balance to cluster the galaxy motion law of comparative study found: virgo cluster of the quality of light than for 200 times, 400 times as much as the base cluster. With the improvement of observation technology, found that the more a waning galaxy, but quality than light still reach 10 times above. The young galaxy blue strong, qualitative light than small, old galaxy tend to reddening, dark and light quality than the big, this law is recognized. This corollary: 18 mag galaxies is old galaxy, invisible galaxy or black dwarf, black holes, should be death galaxy or star debris (if galaxy scale, and the distance from the earth are almost). So, we must reiterate: at present academia popular age of the universe is only visible optical keep the stars within the age, not globular cluster center plays a main role the gravitational field of the black hole age, more is not the galaxy's age. The universe of 90% more dark matter is dead stars, globular cluster wreckage, even older or dead the whole galaxy remains. At present already observed most galaxy have spherical outer halo. Since the galaxy are made by mass of nebula shrinkage formation, then, halo inside of globular cluster or disk family star, when they die into a White Dwarf, black dwarf, neutron stars and black holes, we can see? The death of the stellar debris age is how old? The entire universe to account for more than 90% of the dark matter age is how old?

21.2 infinite eternal cosmological bases And model

21.2.1 Infinite, eternal cosmological basis

Infinite eternal cosmology is the Newton out, because can't explain Mr Bers paradox, spectral red shift to be abandoned. Now reverts the model and on the basis of as follows:

1. We observed cosmic space is Europe's 3 d flat space to cluster of large scale in the universe the uniform distribution is the same. (This model has started and Einstein's theory of relativity, time and space 27 ~ and chapter give system demonstration.

2. Mr Bers paradox, spectral red shift, blackbody cosmic background microwave radiation in the total energy conservation conditions whole into infinite eternal cosmological key basis. The relative motion between stars, galaxy is still there, but the cause with respect to the earth's observer Doppler redshift is only a minimum value, speed even reach 10^6 m/s, the red shift $Z \leq 0.0033$.

3. Active galactic nuclei, quasars internal structure, huge energy conversion model mechanism have been solved successfully.

4. In the study of neutron stars, black holes, the dark matter of the composition, structure, formation and evolution of the entire process, have overcome gravitational collapse, mathematical singularity difficulties. System can solve the stars, all kinds of galaxy formation and evolution, death, into a black hole, dark matter, a black hole collision big bang, or black hole through the accretion disk accretion, polar axis injection, radio process, and nebula regeneration of the whole is material nebula, galaxy evolution process cycle.

5. Orbital theory of quantum physics and the infinite, eternal cosmology is microscopic and macroscopic, you view field and unified whole. All according to all experiments have confirmed that the classical physics, energy relativity theory model set up. No new, without experiments, human imagination, abstract physics, mathematics new concepts, new model to participate in. Have been able to successfully solve Newton the infinite eternal cosmology and modern hot big bang cosmology cannot solve all the problems. Therefore, the basic physical model, theoretical basis and have already obtained results is of no doubt.

21.2.2 Infinite eternal cosmology summary

Modern astronomy observation research of different quality star material origin, formation, evolution to nova, supernovae, the big bang after the death of a White Dwarf, neutron stars, black holes, the stellar debris for electromagnetic pulse radiation and heat radiation to kinetic energy and heat energy completely exhausted, become we are unable to see brown dwarfs, black dwarf, black holes, the entire process, has been quite clear. Gravitational field are act the leading role. The author here only added 2: no longer emission electromagnetic pulse neutron stars and black dwarf, stars Level of black holes and globular cluster the central black hole and the dead large, medium and small galaxy, even galaxy group, all to the dark matter. Dark energy is the big bang universe acceleration model people guess out, this book is ignored.

In the present can be observed, within the scope of the countless nebula, various types of large and small different galaxy, including the initial formation of irregular small galaxy. The origin, formation and evolution of the whole process of to death with stars similar: the mass of nebula began, in the last round of residual small galaxy, stars debris respectively under the action of gravity field, Or floating in the space of the mass of nebula met along the rail passing other galaxy or galaxy group, also in gravitational field effect; Mass of nebula is the residue of small and medium-sized galaxy, stars debris, or passing other galaxy clusters, their formation of gravitational field, attract or tear; Each contraction respectively into size, type of galaxy or globular cluster. The original has entered the old state quality medium galaxy, gravitational field strength and gravity range is larger, can attract the more new nebula substances, rapid development into large galaxy. The original has entered the middle-aged state of small galaxy, get part of the new nebula supplementation will become medium galaxy. As for the original galaxy edge or medium and small galaxy peripheral residual stars, stars debris, globular cluster, in limited within the scope of the gravitational field receive a small nebula material added renewable form small galaxy or globular cluster, even is the massive stars.

With the evolution of the various types of galaxy, the central galaxy nuclear quality increase gradually, gravitational field strengthen gradually, the galaxy visible stars distribution optical scope gradually shrink. Has detected the all kinds of elliptical galaxy, spiral galaxy peripheral all sizes spherical halo, is contraction after the residual traces. Keep the stars within the in formation, the nuclear burning, death, the explosion of replacement process, residual nebula gradually reduce the star formation rate and quality also gradually decreases, and star life but then extended. So, in the rest of the galaxy are reddening, quality smaller stars. The

whole galaxy optical visual range also gradually contraction, qualitative light than increase gradually. If later not to get new nebula supplementation, and ultimately the galaxy or the entire galaxy group, even the small cluster will have become high density ball death galaxy, and the core of a galaxy, peripheral stellar debris neutron stars and black dwarf a, into the dark matter.

And the stars are similar, the quality of the galaxy, the central galaxy nuclear quality and gravitational field strength increase faster, the whole galaxy contraction also faster. The internal star formation rate and the star quality is bigger also, the entire galaxy's life is shorter. Especially the elliptical and giant elliptical galaxy, lack of spiral galaxy slewing that rotary orbital motion of the centrifugal force to maintain, its life is shorter.

Only when the two big, medium-sized, quality close galaxy nuclear or dead galactic nucleus in under the action of gravity collide head-on, will the big bang to form large group nebula, the diffusion range should be the whole galaxy group or larger. Not near death or dead of small and medium-sized galaxy or original galactic nucleus edge stellar debris, each become mass of new nebula split, gravitational contraction center. (such as a CD cluster center giant elliptical galaxy inside sometimes visible multiple galactic nucleus is not surprising that). And will start a new round of galaxy group of the origin, formation and evolution process. Due to the quality of the larger galaxy nuclear central black hole distance between, conflict of the "big bang" opportunity seldom. Common is mutual winding movement has the attraction devour phenomenon, and with the polar axis injection and symmetry compact source radio disc, also can produce mass of new nebula. The two series can be repeated and eternal, infinite.

In the galaxy group, within the scope of the local gravitational field is located in the center of the galaxy group of quality center. With two galaxy nuclear collision big bang and change, local gravitational field center moved to a new round of galaxy group of quality center. Observations show that cluster in the large scale distribution is uniform, the gay, the scientific community has failed to determine, and will never be able to establish the boundary. Explain gravitation field, for each cluster is the overall to balance, uniform. Newton's law of universal gravitation mechanics early has already proved, in uniform, infinite, and density of material distribution in the space, infinite eternal universe, if cluster of large scale to measure, by each direction of gravitational force will tend to zero; Cluster within and around can exist position, strength changing gravitational field shrinkage center and mutual winding along certain orbital motion.

At the back, will the model of the main aspects of the argument.

22 Spectrum redshift is range scale

22.1 Spectrum redshift principle

22.1.1 2.73K blackbody cosmic background microwave radiation principle

Book particle physics part and the fifth chapter has already proved, photon, neutrinos are only charged particles by a pair of electric dipole, fluctuation, precession orbit are cylindrical helix; Fluctuation, precession speed are the speed of light, the fluctuation, precession orbital motion velocity vector and are $\sqrt{2}c$. In the whole universe, photon and neutrino, are only a (regardless of the antiparticle), only the size of energy and wave, precession the length of the track, and different. Two kinds of particles all have wave-particle duality, fluctuation radius R_a and electric dipole rotation radius ratio $K_r=(1.3026\sim 74.637) \times 10^{-10}$, ($a=0^\circ\sim 89^\circ$). Wave-particle duality can also understand directly for the cylindrical spiral wave, precession orbital motion of the wavelength of $\lambda=2\pi\bar{R}_\alpha$, particle radius of entity for $R_{\alpha\bullet}=K_r\bar{R}_\alpha$. The only difference is in the neutrino electric dipole rotation frequency is photon N_ν times, $N_\nu=5991\sim 343323$. Neutrino along the fluctuation, precession orbital motion shows that the electromagnetic wave is like a continuous frequency, amplitude modulation wave series.

The universe 2.73 K microwave blackbody background radiation field is in the neutrino field medium of the shock wave. Neutrinos, photon under certain conditions can transform into each other. Neutrinos field of neutrino was high frequency electromagnetic field excitation can turn into the photon (frequency is greater than the $\bar{m}_\nu c^2/h \geq \textit{photon}$ conditions).

Neutrinos field is electromagnetic and gravitational field of the media, in the space of neutrino velocity is the speed of light.

The basic laws of physics know: any wave propagation should have media, and any energy wave in the media will spread for medium vibration, temperature and friction loss of energy. To the electromagnetic wave and the photon, because of the fluctuation, precession speed are fixed to the speed of light, the energy loss can only lead to wavelength increase, not only cause red shift; Of course, and the light propagation direction opposite movement also can produce frequency smaller red shift; But as stars, galaxy speaking, this kind of red shift quantity is limited; General relative visual acuities to speed 1000 Km/s, Individual such as M31 and light propagation direction of the movement of the blue shift also however 119 Km/s. The back section 26.4 we will prove, only different material component composition, can achieve different movement speed.

So, the universe blackbody microwave radiation background fields since the frequency of electromagnetic can to radiation, for added loss of energy, maintain long-term stable energy radiation balance, it's necessary to absorb energy. As a medium of electromagnetic wave propagation of neutrino field, neutrino and photon with similar and the essential characteristics of absorbing energy, the first choice of object nature is electromagnetic wave and the photon, Moreover, spectrum red shift and blackbody radiation the established overall energy balance system and rightly explains Mr Bers detailed Hubble's law and Samuel. Of course, all kinds of cosmic rays of neutrino field also provide any part of the energy function.

22.2 Spectrum red shift parameter calculation

The calculation results by chapter 5: neutrino floor neutrino average density of $860/\text{cm}^3$. Set each microwave energy levels of neutrino average quality for: $\bar{m}_\nu = 6.221566264 \times 10^{-40}$ kg.

By (1.2-1) type, the average wave radius \bar{R}_ν for:

$$\bar{R}_\nu = \frac{h}{2\pi\bar{m}_\nu c} = 5.654 \times 10^{-4} \text{ m} \quad (22.1)$$

To neutrino, photon inside electric dipole rotation radius coefficient K_r , we unified take mean: $K_r = 2.6052 \times 10^{-10}$. Because of neutrino within the electric dipole rotation frequency N_ν is extremely high, equivalent to the fluctuation, precession cylindrical spiral orbit are beaded electric dipole ball; If we to electric dipole rotation by rail ring for volume, as a blackbody radiation absorption, the volume of V_l , we have:

$$V_l = 2\pi\bar{R}_\nu \sqrt{2\pi(K_r\bar{R}_\nu)^2} = 2\sqrt{2}\bar{R}_\nu (\pi K_r\bar{R}_\nu)^2 \quad (22.2)$$

With electric dipole each rotation frequency electromagnetic field by ball volume, as a photon through energy target area V_0 , we have:

$$V_0 = \frac{4}{3}\pi(K_r\bar{R}_\nu)^3 \quad (22.3)$$

A neutrino inside electric dipole rotation by rail ring volume in neutrino field of space density ratio for $K_{\nu l}$:

$$K_{\nu l} = V_l \times 860 \times 10^6 / \text{m}^3 \quad (22.4)$$

Because of the photon energy far outweigh the neutrino background field of microwave level of neutrino average energy, so wavelength, wave radius is far less than the wavelength of neutrinos, volatility radius. To simplify the photons to point particle, it along the fluctuation, precession cylindrical spiral orbital motion stroke T time, can impact the neutrino electromagnetic field ball number N_{mv} for:

$$N_{mv} = \frac{\sqrt{2}cT\pi(K_r\bar{R}_\nu)^2 K_{\nu l}}{V_0} \quad (22.5)$$

Will (22.1), (22.3) and (22.4) type results substitution (22.5) type, to: $N_{mv} = 635.7595T$. Both photon in space operation, along the way to a second through the 635.7595T microwave level neutrino inside electric dipole rotation formation of electromagnetic field goals, and photon operation time, is proportional to the distance. Because of the photon energy far outweigh the neutrino background field of microwave level neutrino average energy, a photon every through a neutrino electromagnetic field on the ball will loss K_w coefficient of energy, $K_w \rightarrow 0$, so, can make the photon energy m_r for constant. By (1.2-1) type, through the $n=N_{mv}$ a neutrino electromagnetic field after the ball photon wavelength λ_i into:

$$\lambda_i = \frac{h}{m_r(1 - K_w)^n c} \tag{22.6}$$

Make light just for the photons emitted by a wavelength λ_0 , then through the first neutrino electromagnetic field ball, wavelength for λ_1 , red shift for K_{z1} , through the first n a neutrino electromagnetic field the ball wavelength λ_n available sequence said:

$$\left\{ \begin{array}{l} \lambda_1 = \frac{h}{m_r(1 - K_w)c} \quad K_{z1} = \frac{\lambda_1}{\lambda_0} - 1 = \frac{1}{1 - K_w} - 1 \quad (27.7 - 1) \\ \lambda_2 = \frac{h}{m_r(1 - K_w)^2 c} \quad K_{z2} = \frac{\lambda_2}{\lambda_1} - 1 = \frac{1}{1 - K_w} - 1 \quad (27.7 - 2) \\ \dots \quad \dots \quad \dots \quad \dots \\ \lambda_n = \frac{h}{m_r(1 - K_w)^n c} \quad K_{zn} = \frac{\lambda_n}{\lambda_{n-1}} - 1 = \frac{1}{1 - K_w} - 1 \quad (27.7 - n) \end{array} \right.$$

The photon operation the red shift $Z = \sum K_{zi}$ for:

$$\sum K_{zi} = \frac{N_{mv} K_w}{1 - K_w} \tag{22.8}$$

The equations (22.7) and (22.8) type, for $n = N_{mv}$, we have:

$$K_w = \frac{\sum K_{zi}}{\sum K_{zi} + N_{mv}} \tag{22.9}$$

The Hubble's law, spectrum red shift $\sum K_{zi}$ and distance R relationship for:

$$R = \frac{\sum K_{zi}}{H_0} \tag{22.10}$$

H_0 takes 75 km/sMpc, conversion: $H_0 = 1/13031 \times 10^6$ light years away.

In different red shift value, respectively substitution (22.10), (22.5) and (22.9) type, get R, N_{mv} , K_w parameter table 22.1.

Spectrum red shift $\sum K_{zi}$ and distance R relation calculation results table table 22.1

$\sum K_{zi}$	R (light-years)	N_{mv}	K_w
0.01	1.3031×10^8	2.6126×10^{18}	3.827×10^{-21}
0.1	1.3031×10^9	2.6126×10^{19}	3.827×10^{-21}
1	1.3031×10^{10}	2.6126×10^{20}	3.827×10^{-21}
10	1.3031×10^{11}	2.6126×10^{21}	3.827×10^{-21}
100	1.3031×10^{12}	2.6126×10^{22}	3.827×10^{-21}

From the above derivation calculation result: photon and microwave energy levels of neutrino electromagnetic field ball collision frequency N_{mv} and operation distance R , time T is proportional to the; Energy loss coefficient K_w for constant, not with the photon energy, wavelength, red shift value change and change; So, from (22.10) type, Hubble's law and spectrum red shift value, just can be used as a range scale, and will be astronomy field only reliable scale.

Because the wavelength of visible light for 7000~4000 Å, from purple light to red light, the red shift of AA, substituting (22.10) type, : we can see the furthest visible light optical galaxy for 24.4 billion light-years.

22.3 spectrum red shift formula of correction

This section is 2005 years ago have not yet found and complete chapter 29 «the graviton and mystery of the dark matter» of the paper writing. Thought the universe space is mainly homogeneous, isotropic in microwave energy levels of neutrino field; regardless of the chapter 29 in the discussion of the universal gravitation can form the electron neutrino field. The reader can ignore this section of the spectrum red shift formula of correction.

The last section spectrum red shift formula derivation, we will photon as point particle processing. When the photon energy close to microwave level neutrino background field energy; Or red shift value is bigger, make the photon energy, wavelength down to close to the neutrino background field far infrared area; Photon entity radius should be considered, it will increase with the neutrino electromagnetic field ball collision frequency N_{mv} . Below, we'll assume that photon energy loss coefficient K_w the same, only the photon and neutrino collision frequency N_{mv} amended.

By (22.1) type, far infrared photon average fluctuations radius \bar{R}_{ar} for:

$$\bar{R}_{ar} = \frac{h}{2\pi m_r (1 - K_w)^n c} \quad (22.11)$$

By (22.2) ~ (22.4) type, (22.5) type rewritten for:

$$N_{mv} = \sqrt{2cT\pi} [K_r (\bar{R}_{ar} + \bar{R}_{av})]^2 \frac{V_l}{V_0} \times 860 \times 10^6 \quad (22.12)$$

Will K_r value, (22.1) and (22.3) type calculation results substitution (22.12) type, have to:

$$N_{mv} = 635.7595T \left(\frac{\bar{R}_{ar}}{\bar{R}_{av}} + 1 \right)^2 \quad (22.13)$$

By (22.1) and (22.11) type, (22.13) type should be expressed as:

$$N_{mv} = 635.7595T \left[\frac{m_v}{m_r (1 - K_w)^n} + 1 \right]^2 \quad (22.14)$$

Because of the photon energy will eventually tend to neutrino background field energy, so (22.14) type simplified to:

$$N_{mv} = 635.7595T \left[1 + 2 \frac{m_v}{m_r} + \left(\frac{m_v}{m_r} \right)^2 \right] \quad (22.15)$$

And (22.5) type, compared to the photon in the operation process, and neutrino electromagnetic field ball collision frequency N_{mv} will increase, but each time collision energy loss coefficient is constant, (K_w value whether changes should eventually by observation results to determine); So, in the far infrared, red shift K_{zi} get bigger, its limit area is photon and microwave energy levels of neutrino background field energy is same, photon into neutrino.

When the electromagnetic wave energy is less than the neutrino average energy, in the nature of the electromagnetic wave propagation, the energy loss of media medium energy loss, this paper will not discuss.

By (22.15) type known: $N_{m\nu}$ is variable, so we have to use integral method for calculating the mean $\bar{N}_{m\nu}$:

$$\bar{N}_{m\nu} = \int_{m_v}^{m_r} 635.7595T \left[1 + 2 \frac{m_v}{m_r} + \left(\frac{m_v}{m_r} \right)^2 \right] \frac{dm}{\Delta m} = 635.7595T \left[1 + 2 \frac{m_v}{\Delta m} \ln \frac{m_r}{m_v} + \frac{m_v}{m_r} \right]$$

Among them:

$$\Delta m = (m_r - m_v) \quad (22.16)$$

Because $\sum K_{z_i} + 1 = \frac{m_r}{m_v}$, substituting (22.16), type to:

$$\bar{N}_{m\nu} = 635.7595 \left[1 + \frac{2}{\sum K_{z_i} + 1} \ln(\sum K_{z_i} + 1) + \frac{1}{\sum K_{z_i} + 1} \right] \quad (22.17)$$

By (22.17) type, when the photon energy close to microwave level neutrino background field energy:

Make $\sum K_{z_i} \rightarrow 0 \sim 2.5 \sim 10$, to the: $\bar{N}_{m\nu} = (2 \sim 2.0016 \sim 1.5269) \times 635.7595/s$

When photons travel infinity and energy is neutrino fields all absorption:

$$\text{Make } \sum K_{z_i} \rightarrow \infty, \text{ to: } \bar{N}_{m\nu} = 635.7595/s.$$

23 Neutron star total energy and gravitational potential energy, rotation kinetic energy equation

This chapter, by default the function of the neutron star density changes, simulation calculations prove: the massive solid spherical structure of the neutron star gravitational collapse will inevitably lead to the total energy, the spatial extent of the gravitational field strength; the force of gravity tends to infinity "divergence" phenomenon. Which will inevitably lead to entire galaxies, clusters of galaxies, clusters of galaxies, and even the entire universe at the speed of light contraction, and in fact this astronomical phenomenon does not occur, so readers do not have to care about in this chapter the default neutron star density changes as a function of the accuracy, as long as the understanding of solid spherical structure of the neutron star is bound to lead to this trend.

23.1 Densities, the total energy of the neutron star,

The gravitational potential energy, rotation

Kinetic energy equation

23.1.1 The internal structure of neutron stars

The general quality of large stellar fusion burn late, the middle of the wreckage of the rest of the neutron star was a supernova explosion; the quality will not be much, much smaller than the speed of light along the equatorial edge of the rotation speed, rotation of the total kinetic energy thus formed to increase energy relativistic mass negligible. We can in density, its mass, gravitational potential energy; non-energy relativistic conditions simplify research rotation kinetic energy.

Assume that the neutron star for a spin round sphere. The book particle, nuclear physics know: a neutron star internal structure should be similar with the nucleus, the high and low energy particle spiral ring close accumulation and become. We will each neutron "broken down into" 2 high energy is π_g^+ meson, 2 low energy negative π_d^- meson, (electronic is compressed and proton combination into neutron time a pair of electric dipole field by neutrino absorb added). Make high energy is π_g^+ meson quality for low energy negative π_d^- meson two times; By (1.2-1) type, each neutron rest mass for m_{n0} , low energy negative π_d^- meson average fluctuations radius \bar{R}_α for:

$$\bar{R}_\alpha = \frac{h}{2\pi\left(\frac{m_{n0}}{6}\right)c} = 1.2601 \times 10^{-15} m \tag{23.1}$$

To everyone neutron occupied volume are $V_{n0} = \frac{4}{3}\pi\bar{R}_\alpha^3$, the neutron star of the original density $\bar{\rho}_0$ for:

$$\bar{\rho}_0 = \frac{m_{n0}}{V_{n0}} = 1.9984 \times 10^{17} Kgm^{-3} \tag{23.2}$$

Make a rigid body rotating neutron star whole, (the conditions within the nucleus of each layer particle spiral ring layer for difference spin motion). By the law of conservation of energy, the neutron star gravitational potential energy and rotational kinetic energy will all into particle energy relativity quality, the result is narrow particle fluctuation radius, resulting in the increase of density, neutron star reduced in size.

23.1.2 Etc density conditions neutron star total energy and gravitational potential energy equation

A neutron star first for isotropic body, density of constant ρ_0 (ρ_0 is slightly bigger than $\bar{\rho}_0$) total quality as the M_{n0} , and radius R_0 , density ρ_0 relationship for:

$$M_{n0} = \frac{4}{3}\pi R_0^3 \rho_0 \tag{23.3}$$

$$\rho_0 = \frac{3M_{n0}}{4\pi R_0^3} \tag{23.4}$$

The neutron star internal quality M_{nr} and star body radius R_r relationship for:

$$M_{nr} = \frac{4}{3}\pi R_r^3 \rho_0 = M_{n0} \left(\frac{R_r}{R_0}\right)^3 \tag{23.5}$$

Neutron star in total energy, gravitational potential energy will increase attracted the kinetic energy of a material body. Gravitational field potential energy of an object, particle compression results will all into high and low energy π^\pm meson energy relativity quality, so this book gravitational potential energy is all take value.

By Gauss theorem, gravitational field strength E_{nr} for:

$$E_{nr} = \frac{GM_{nr}}{R_r^2} \quad E_{nr} = \begin{cases} \frac{4}{3}\pi R_r \rho_0 G & (R_r \leq R_0) \\ \frac{4}{3}\pi \rho_0 G \frac{R_0^3}{R_r^2} & (R_r > R_0) \end{cases} \tag{23.6}$$

By (23.3), (23.5) and (23.6) type,, gravitational potential U_{nr} for:

$$U_{nr} = \int_{R_r}^{R_0} E_{nr} dR_r + \int_{R_0}^{\infty} E_{nr} dR_r = \frac{4}{3} \pi \rho_0 G \left[\int_{R_r}^{R_0} R_r dR_r + \int_{R_0}^{\infty} \frac{R_0^3}{R_r^2} dR_r \right] = \frac{M_{n0} G}{2R_0} \left[3 - \left(\frac{R_r}{R_0} \right)^2 \right] \tag{23.7}$$

By (23.7) type, each layer in the spherical shell of neutron dW_{nu} gravitational potential energy can be expressed as:

$$dW_{nu} = \frac{M_{n0} G}{2R_0} \left[3 - \left(\frac{R_r}{R_0} \right)^2 \right] \times 4\pi R_r^2 dR_r \rho_0 \tag{23.8}$$

By (23.3), (23.7) and (23.8) type, the neutron star gravitational potential energy W_{nu} for:

$$\begin{aligned} W_{nu} &= \int_0^{R_0} 4\pi R_r^2 \rho_0 U_{nr} dR_r = \int_0^{R_0} \frac{M_{n0} G}{2R_0} \left[3 - \left(\frac{R_r}{R_0} \right)^2 \right] \times 4\pi R_r^2 \rho_0 dR_r \\ &= \frac{2\pi M_{n0} G \rho_0}{R_0} \left[R_r^3 - \frac{R_r^5}{5R_0^2} \right]_0^{R_0} = \frac{6M_{n0}^2 G}{5R_0} \end{aligned} \tag{23.9}$$

23.1.3 Rotational kinetic energy equation

Make a neutron star is a rigid ball, rotation angular velocity is the $\dot{\theta}$, see figure 23.1, since the rotation for W_{nv} :

Because $X = R_r \cos \phi, \dots Y = R_r \sin \phi, \dots dS = R_r d\phi \cdot dR_r$, and by the figure 23.1 shows:

$$\begin{cases} dM_{nr} = 2\pi R_r \cos \phi dS \rho_0 & (23.10-1) \\ dW_{nv} = \frac{1}{2} dM_{nr} (\dot{\theta} R_r \cos \phi)^2 & (23.10-2) \end{cases}$$

By (23.10) equations, the neutron star in the rotation movement the total kinetic energy W_{nv} for:

$$\begin{aligned} W_{nv} &= \frac{1}{2} \int 2\pi R_r \cos \phi \rho_0 (\dot{\theta} R_r \cos \phi)^2 dS \\ &= 2\pi \rho_0 \int_0^{R_0} \dot{\theta}^2 \int_0^{\pi/2} R_r^4 \cos^3 \phi dR_r d\phi = 2\pi \rho_0 \frac{R_0^5 \dot{\theta}^2}{5} \int_0^{\pi/2} (1 - \sin^2 \phi) d \sin \phi \\ &= \frac{4}{15} \pi R_0^5 \dot{\theta}^2 \rho_0 = \frac{1}{5} M_{n0} \dot{\theta}^2 R_0^2 \end{aligned} \tag{23.11}$$

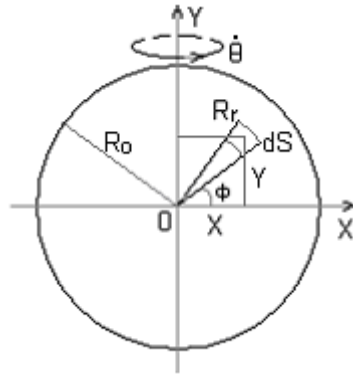


Figure 23.1 the neutron star rotation characteristic diagram

By Virial theorem, the neutron star took off a circle neutron material ring rotates, centrifugal force and gravity should be equal, to balance, the figure 23.1:

$$\frac{dM_{nr} (\dot{\theta} R_r \cos\phi)^2}{R_r \cos\phi} = \frac{GM_{nr} dM_{nr}}{R_r^2} \cos\phi \tag{23.12}$$

$$(\dot{\theta} R_r)^2 = \frac{GM_{nr}}{R_r} \quad \dot{\theta}^2 = \frac{4}{3} \pi \rho_0 G$$

Will (23.12) type substitution (23.11) type, have to:

$$W_{nv} = \frac{GM_{n0}^2}{5R_0} \tag{23.13}$$

Comparison (23.9) and (23.13) type, such as density, neutron stars: in the energy theory of relativity speed rotation condition, the neutron star gravitational potential energy is 6 times of rotation kinetic energy.

If in accordance with the virial theorem the neutron star rotation kinetic energy deducted from the gravitational potential energy, and the gravitational potential energy into energy theory of relativity the quality ΔM_{n0} , by (23.9) and (23.13), type:

$$\Delta M_{n0} = \frac{GM_{n0}^2}{R_0 c^2} \tag{23.14}$$

Quality increase coefficient K_{m0} for:

$$K_{m0} = \frac{\Delta M_{n0}}{M_{n0}} = \frac{GM_{n0}}{R_0 c^2} \tag{23.15}$$

Make $K_{m0} = 1$, R_0 value represents the black hole of the Schwarzschild radius.

23.2 variable density conditions neutron star total energy,

Gravitational potential energy and rotational kinetic energy equation

23.2.1 Variable density conditions neutron star total energy and gravitational potential energy equation

When a neutron m_{n0} from the static state from infinity are attracted to the neutron star surface, make whole neutron star quality as the M_{n0} , from (23.15) type, its gravitational potential energy quality increase coefficient K_{m0} for:

$$K_{m0} = \frac{GM_{nr0}}{R_0 c^2} \tag{23.16}$$

When introduced into the neutron star center, the (23.7) type, its gravitational potential energy quality increase coefficient K_{m1} for:

$$K_{m1} = \frac{3GM_{nr0}}{2R_0c^2} \tag{23.17}$$

By the wave equation (1.2-1) type, particle spiral ring average fluctuations radius \bar{R}_{ci} into:

$$\bar{R}_{ci} = \frac{h}{2\pi(1 + K_{mi})\left(\frac{m_{n0}}{6}\right)c} \tag{23.18}$$

Because each a neutron occupy the volume of the particles spiral ring for $\frac{4}{3}\pi\bar{R}_{ci}^3$, so the neutron star surface density function ρ_0 should be:

$$\rho_0 = \bar{\rho}_0(1 + K_{m0})^4 \tag{23.19}$$

The gravitational potential function (23.7) type, the center of gravitational potential energy surface is 1.5 times, because it is derived under the condition of such as density, if variable density conditions, the center of gravity potential bigger, so we first design center gravitational potential energy surface for 3 times, the center density ρ_1 for surface ρ_0 27 times, the neutron star internal density function ρ_r can be designed for:

$$\rho_r = \rho_0 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] \tag{23.20}$$

By (23.20) type, the neutron star internal quality M_{nr} and total quality M_{nr} for:

$$\begin{aligned} M_{nr} &= \int_0^{R_r} 4\pi R_r^2 \rho_r dR_r = 4\pi\rho_0 \int_0^{R_r} R_r^2 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] dR_r \\ &= 4\pi\rho_0 \left(9R_r^3 - \frac{26R_r^5}{5R_0^2} \right) \end{aligned} \tag{23.21}$$

$$M_{nr0} = \frac{57}{5} \times \frac{4}{3} \pi R_0^3 \rho_0 = 11.4M_{n0} \quad \left(M_{n0} = \frac{4}{3} \pi R_0^3 \rho_0 \right) \tag{23.22}$$

By (23.6) type, gravitational field strength E_{nr} for:

$$E_{nr} = \frac{GM_{nr}}{R_r^2} \quad E_{nr} = \begin{cases} 4\pi\rho_0 G \left(9R_r - \frac{26R_r^3}{5R_0^2} \right) & (R_r \leq R_0) \\ 4\pi\rho_0 G \times \frac{19R_0^3}{5R_r^2} & (R_r > R_0) \end{cases} \tag{23.23}$$

By (23.7) type, gravitational potential U_{nr} for:

$$U_{nr} = \int_{R_r}^{R_0} E_{nr} dR_r + \int_{R_0}^{\infty} E_{nr} dR_r$$

$$\begin{aligned}
 &= 4\pi\rho_0 G \left[\int_{R_r}^{R_0} \left(9R_r - \frac{26R_r^3}{5R_0^2} \right) dR_r + \int_{R_0}^{\infty} \frac{19R_0^3}{5R_r^2} dR_r \right] \\
 &= 4\pi\rho_0 G \left(7R_0^2 - \frac{9}{2}R_r^2 + \frac{13R_r^4}{10R_0^2} \right) \tag{23.24}
 \end{aligned}$$

The neutron star gravitational potential energy W_{nu} , by (23.9) and (23.20), (23.21) and (23.24), type:

$$\begin{aligned}
 W_{nu} &= \int_0^{R_0} 4\pi R_r^2 \rho_r U_{nr} dR_r \\
 &= (4\pi\rho_0)^2 G \int_0^{R_0} \left(7R_0^2 - \frac{9}{2}R_r^2 + \frac{13R_r^4}{10R_0^2} \right) R_r^2 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] dR_r \\
 &= (4\pi\rho_0)^2 G R_0^5 \left[63 \left(\frac{R_r}{R_0} \right)^3 - \frac{607}{10} \left(\frac{R_r}{R_0} \right)^5 + \frac{1521}{70} \left(\frac{R_r}{R_0} \right)^7 - \frac{338}{90} \left(\frac{R_r}{R_0} \right)^9 \right]_0^{R_0} \\
 &= 182.457 M_{n0} \left(\frac{M_{n0} G}{R_0 c^2} \right) \tag{23.25}
 \end{aligned}$$

23.2.2 Neutron star rotation total kinetic energy equation

When the neutron star quality is bigger, the center gravity field compressive force is bigger also, lead to intermediate density change, due to the rotation speed is bigger, and then you should consider rotation speed energy relativistic effects. By (23.16) ~ (23.20) type, figure 23.1, a neutron star rotation angular velocity is the $\dot{\theta}$, because of the rotation direction along the X axis density change for ρ_x :

$$\rho_x = \rho_0 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] \left[1 - \left(\frac{\dot{\theta} R_r \cos \phi}{c} \right)^2 \right]^{-2} \tag{23.26}$$

The energy theory of relativity and figure 23.1, (23.6) type, each material ring the total energy of the dM_n for:

$$dM_n = \frac{dM_{n0}}{\sqrt{1 - \left(\frac{\dot{\theta} R_r \cos \phi}{c} \right)^2}} = 2\pi R_r \cos \phi \rho_x dS \tag{23.27}$$

By (23.26) and (23.27) type, the neutron star M_{nr} total energy for:

$$\begin{aligned}
 M_{nr} &= 2 \int_0^{R_r} \int_0^{\pi/2} 2\pi R_r \cos \phi \rho_0 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] R_r \left[1 - \left(\frac{\dot{\theta} R_r \cos \phi}{c} \right)^2 \right]^{-2} d\phi dR_r \\
 &= 4\pi\rho_0 \int_0^{R_r} \int_0^{\pi/2} R_r^2 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] \left[1 - \left(\frac{\dot{\theta} R_r}{c} \right)^2 + \left(\frac{\dot{\theta} R_r \cos \phi}{c} \right)^2 \right]^{-2} dR_r d \sin \phi
 \end{aligned}$$

$$= 2\pi\rho_0 R_0^3 \int_0^{R_0} \left\{ \left[\left(\frac{R_r}{R_0} \right)^2 \left[27 - 26 \left(\frac{R_r}{R_0} \right)^2 \right] \left[1 - \left(\frac{\dot{\theta} R_r}{c} \right)^2 \right]^{-1} \right. \right. \\ \left. \left. \left[1 + \operatorname{arctg} \frac{\dot{\theta} R_r}{c \sqrt{1 - (\dot{\theta} R_r / c)^2}} \left(\frac{\dot{\theta} R_r}{c} \sqrt{1 - (\dot{\theta} R_r / c)^2} \right)^{-1} \right] \right] \right\} d \left(\frac{R_r}{R_0} \right) \quad (23.28)$$

Because the neutron stars equatorial edge rotational velocity $v_0 < c$, $\dot{\theta} R_0 / c < 1$, so, make the $R_r/R_0 = \dot{\theta} R_r/c = 0 \rightarrow < 1$, the starting point $R_r/R_0 = 10^{-6}$, get variable density neutron star total energy parameter table 23.1:

Variable density neutron star total energy parameter simulation results table table 23.1

$\dot{\theta} R_0 / c$	$M_{nr0} = K_m \times 4\pi R_0^3 \rho_0 / 3 \quad (K_m)$
0.001	11.400006
0.01	11.400675
0.1	11.467896
0.3	12.047244
0.5	13.444395
0.7	16.501857
0.9	25.74513
0.99	52.269
0.998	79.8

By Virial theorem, a neutron star equatorial surface, rotation speed is still should be less than the speed of light, by (23.12), type:

$$\frac{dM_n (\dot{\theta} R_0)^2}{R_0} = \frac{GM_{nr0} dM_n}{R_0^2}, \quad (\dot{\theta} R_0)^2 = \frac{GM_{nr0}}{R_0}$$

Because: $(\dot{\theta} R_0) < c$, so:

$$R_0 > \frac{GM_{nr0}}{c^2} \quad (23.29)$$

By (23.22), (23.25) and (23.28) type calculation results is to:

Variable density neutron star rest mass is 11.4 times of the neutron star and density. In general the center of the core of a galaxy the black hole, because $GM_{n0} / R_0 c^2 >> 1$, so the gravitational potential energy far outweigh the 182.4571 times. When the neutron star high-speed rotation, due to the equatorial surface by the speed of light limit, including kinetic energy, the energy theory of relativity total quality most can only achieve static quality 79.8 times, is far less than the gravitational potential energy of the increment of the $>> 182.4571$ times.

By (23.16) and (23.17) type, the gravitational potential energy increment coefficient K_{mi} , when $GM_{n0} / R_0 c^2 >> 1$, the total energy will tend to infinity, such as in the core of a galaxy, in the middle of the huge black hole, the gravitational potential energy will far outweigh the neutron star surface at the speed of light when motion can hold by the energy law of relativity and the total energy. The gravitational collapse phenomenon will make the total energy is skyrocketing geometric series, led directly to the gravitational field strength and gravity range

also shows geometric series increase, The end result is that the entire galaxy, clusters, cluster, and even the entire universe contraction at the speed of light, Form the so-called space infinitesimal, energy and density are the infinity of mathematical singularity. To be sure, all have been forming large, medium and small galaxy central galaxy nuclear black holes, even globular cluster at the center of the black hole, are completely satisfy this condition, but in the observation of 200 light-years in sight, all of the galaxy clusters are not seen this kind of singularity shrinkage phenomenon; So, great quality galaxy nuclear central black hole, the internal structure of state should reconsider.

24 The interior of a black hole structure and total energy equation

24.1 The interior of a black hole structure and gravitational field equation

24.1.1 Black hole internal structure and the general law of conservation of energy

From the front have discussion of the basic particle, electromagnetic wave, the neutrino field, the energy of the gravitational field of origin can be deduced that energy is the only form of material existence; Neither is created out of thin air, also cannot off for no reason at all; It can only be converted from one form into another kind of form; And no matter what the state of matter, form transformation process, even in microscopic and macroscopic, you view field, all kinds of material between the state transition process, the total energy must be fully conservation.

In classical electrodynamics, we have to "point charge" energy divergent difficult, through the wave equation of wave orbit radius smoothly solve; At the same time proves charged particle in a certain direction of the wave, spin motion resultant velocity must $\geq c$ to stability.

Similarly, in section 23.2 has been proved: quality large neutron star in variable density condition gravitational field, but the total potential energy than energy relativistic rotation movement of the total energy. Gravitational collapse also tend to be singular point in total energy, gravitational field strength, gravity to infinity space range all the whole "divergence" difficult; And with the point charge, in microscopic and macroscopic, you view field, in reality the "divergence" phenomenon is not exist; Just reflect our basic law of physics is not comprehensive and perfect; Therefore, since we have wave equation and electronic wave motion orbit radius fix the point charge energy "divergence" difficult; Why can't use this method to solve the interior of a black hole structure and total energy, gravitational field strength, gravity space range of overall "divergence" difficult?

In the macroscopic field, we already know, a high speed rotation of globular star, polar axis ends because no rotation speed formation of centrifugal force, in under the action of gravity field will shrink or even dent. The centrifugal force of the equator the congress inflation, will eventually make round ball, become rotating flat ellipsoid. If the quality of the neutron star is larger, rotation speed is large enough, the polar axis ends in strong gravitational field will be under the action of shrinkage, depression and even scored; The equator in strong centrifugal force under the action of continuous inflation, it would form a circular ring of neutron spiral ring aggregation, see figure 24.1, (behind referred to as neutron material ring). Each neutron material ring every small piece, should follow the general law of conservation of energy and the virial theorem.

Design the internal structure of the black hole, it does not exist total energy, gravitational field strength, gravity space range of overall "divergence" difficulties, and can realize smoothly collision big bang, accretion disk material to polar axis injection, make the neutron decay into protons, electrons and neutrino, produce symmetrical radio disc, form is material nebula regeneration cycle.

Moreover, when material from accretion disk edge of high-speed rotary motion to polar axis injection, accretion disk edge of the moment of momentum energy will be transformed into a shaft injection kinetic energy. Just like in the basin high-speed rotation movement of water, the moment of momentum energy will eventually because of friction into heat energy. Similarly, solar nebula began to shrink from the early stages of the edge of the moment of momentum; most of the material energy eventually is converted to the heat of the sun.

24.1.2 Neutron material ring gravitational field equation

Each neutron material ring itself, lateral and different direction of the gravitational field strength are a little different, we first study respectively, and finally makes a comprehensive comparison between.

1. Each neutron material ring itself gravitational field equation

See figure 24.1 and figure 24.2, make the neutron material ring for circular ring aggregate, density ρ_0 for constant, rotation angular velocity is the $\dot{\phi}$. Particle spiral ring structure and nuclear similar, because both side's symmetry, a universal gravitation for F_i , we have:

$$dl = R_1 d\phi, \quad dM_{ni} = \pi R_2^2 dl_i \rho_0, \quad dF_1 = \frac{GdM_{n1}dM_{ni}}{\left(2R_1 \cos \frac{\phi}{2}\right)^2} \cos \frac{\phi}{2}$$

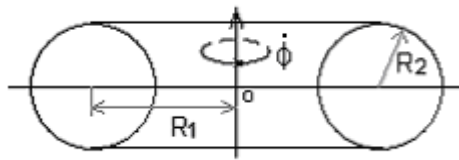


Figure 24.1 neutron material ring structure diagrams

$$F_i = \int_0^\phi \frac{2GdM_{n1}\pi R_2^2 \rho_0}{\left(2R_1 \cos \frac{\phi}{2}\right)^2} \cos \frac{\phi}{2} R_1 d\phi = \int_0^\phi \frac{GdM_{n1}\pi R_2^2 \rho_0}{2R_1 \cos \frac{\phi}{2}} d\phi$$

$$= \frac{GdM_{n1}\pi R_2^2 \rho_0}{R_1} \left(\ln \operatorname{tg} \frac{\phi}{2} - \ln \operatorname{tg} \frac{\phi}{4} \right) \dots \dots \dots (24.1)$$

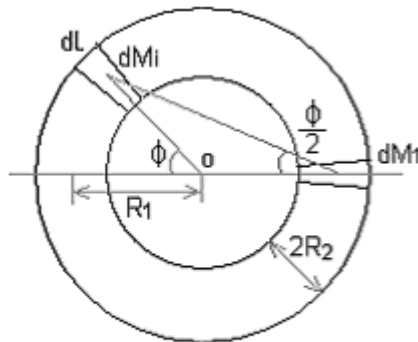


图 24.2 中子物质环自身引力场示意图

Figure 24.1 neutron material ring structure diagrams

Because of $\phi = \pi - \frac{d\phi}{2}$, so, $\ln \operatorname{tg}(\phi/2) \approx 2\pi$, $M_{n1} = 2\pi R_1 \times \pi R_2^2 \rho_0$ substitution (24.1), type to:

$$F_i = \frac{GM_{n1}dM_{n1}}{R_1^2} \quad (24.2)$$

2. Each neutron material ring plane the outside of the gravitational field equation

See figure 24.3, make A place for A neutron material ring dM_{n1} , in ΔAOB :

$$\begin{cases} AB^2 = OA^2 + R_1^2 + 2OA R_1 \cos\phi & (24.3-1) \\ R_1^2 = AB^2 + OA^2 - 2OA AB\cos\alpha & (24.3-2) \end{cases}$$

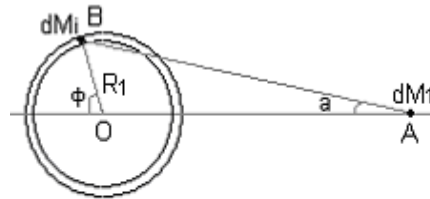


图24.3 中子物质环平面外侧引力场示意图

Figure 24.3 neutron material ring plane lateral gravitational field schematic diagram

By (24.3) equations to:

$$\cos\alpha = \frac{OA + R_1 \cos\phi}{AB} \tag{24.4}$$

$$dF_i = \frac{GdM_{n1}dM_{ni}}{AB^2} \cos\alpha \tag{24.5}$$

By (24.3-1) and (24.4) and (24.5) type, have to:

$$\begin{aligned} F_i &= \int_0^\pi \frac{2GdM_{n1}\pi R_2^2 \rho_0 R_1 \cos\alpha}{AB^2} d\phi \\ &= \frac{GdM_{n1}M_{n2}}{OA^2} \int_0^\pi \frac{\left(1 + \frac{R_1}{OA} \cos\phi\right)}{\pi \left[1 + \left(\frac{R_1}{OA}\right)^2 + 2\left(\frac{R_1}{OA}\right) \cos\phi\right]^{1.5}} d\phi \end{aligned} \tag{24.6}$$

(24.6) type behind the integral value simulation results are as follows:

$$\begin{aligned} \frac{R_1}{OA} = 0.5 & \int_0^\pi \frac{\left(1 + \frac{R_1}{OA} \cos\phi\right)}{\pi \left[1 + \left(\frac{R_1}{OA}\right)^2 + 2\left(\frac{R_1}{OA}\right) \cos\phi\right]^{1.5}} d\phi = 1.24562 \\ = 0.1 & \dots \dots \dots = 1.00757 \\ = 0.01 & \dots \dots \dots = 1.000075 \end{aligned}$$

3. Vertical each neutron material on the ring of the gravitational field equation

See figure 24.4, reference (24.6), type:

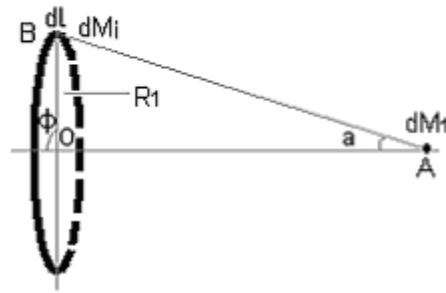


图 24.4 中子物质环轴线上引力场方程示意图

Figure 24.4 neutron material rings on the axis of gravitational field

Equation schematic diagram

$$\begin{aligned}
 F &= \int_0^{2\pi} \frac{GdM_{n1}\pi R_2^2 \rho_0 R_1 \cos\alpha}{AB^2} d\phi \\
 &= \int_0^{2\pi} \frac{GdM_{n1}\pi R_2^2 \rho_0 R_1 OA}{(R_1^2 + OA^2)^{1.5}} d\phi \\
 &= \frac{GdM_{n1}M_{n1}}{OA^2 \left[1 + \left(\frac{R_1}{OA} \right)^2 \right]^{1.5}} \tag{24.7}
 \end{aligned}$$

Similarly, as: $\frac{R_1}{OA} \rightarrow 0, \left[1 + \left(\frac{R_1}{OA} \right)^2 \right]^{-1.5} \rightarrow 1$, and (24.6) type calculation results

can mutual away, make comprehensive results more close to 1. Of course, we can also in figure 24.3 and figure 24.4 between simulation results find transition ring, make comprehensive value is 1.

4. Inner neutron material ring combination foreign layer neutron material ring comprehensive gravitational field equation

When the inner each neutron material ring all alone occupy a ball shell rail surface, multilayer neutron material ring is equivalent to their uniform distribution in each layer on the spherical shell. The Gauss theorem of symmetry, the inner all neutron material ring foreign layer neutron material ring dM_i gravitational fields can be expressed as:

$$F_m = \frac{G(M_{n1} + M_{n2} \dots \dots + M_{nn})dM_{ni}}{R_{ln}^2} \tag{24.8}$$

24.2 The interior of a black hole of the virial equilibrium theorem and total energy equation

24.2.1 Black hole internal Virial equilibrium theorem

According to theVirial movement balance theorem, a neutron material ring spin the energy of motion theory of relativity speed coefficient for K_v , to the center of the black hole first neutron material ring M_{n1} , make the orbit radius for $R_{1,1}$, cross section radius for $R_{2,1}$, (both to subscript difference, the same below), the average density of ρ_{01} . By (24.2) and (23.29) type:

$$\frac{2\pi R_{1,1} \pi R_{2,1}^2 \rho_{01} G dM_{ni}}{R_{1,1}^2} = \frac{dM_{ni} (K_v c)^2}{R_{1,1}}$$

$$R_{2,1} = \frac{K_v c}{\sqrt{2\pi^2 G \rho_{01}}} \tag{24.9}$$

The theory of relativity and energy (23.19) type, the neutron material ring density ρ_{0n} and original neutron spiral ring density $\bar{\rho}_0$ relationship for:

$$\rho_{0n} = \frac{\bar{\rho}_0}{(1 - K_v^2)^2} \tag{24.10}$$

Will (24.10) type substitution (24.9) type, have to:

$$R_{2,1} = \frac{K_v c (1 - K_v^2)}{\sqrt{2\pi^2 G \bar{\rho}_0}} \tag{24.11}$$

Because K_v for undetermined coefficient, other is constant, the (24.11) type and derivative take very worth:

$$\text{When } K_v = \frac{1}{\sqrt{3}}, R_{2,1} = \frac{2\sqrt{3}c}{9\sqrt{2\pi^2 G \bar{\rho}_0}} = 7112.39 \text{ m is great value}$$

Front section 21.2 has been mentioned, galaxy in the formation, evolution process, as the core of a galaxy quality increase gradually, under the action of the gravitational field, optical galaxy is gradually contraction. We now consider the galaxy's shrinkage speed: if the whole galaxy in the evolution process, the total number of protons, neutrons remain unchanged; So, by energy theory of relativity, suction galaxy nuclear central black hole formation of neutron material ring of total quality depends on the energy relativistic spin speed $K_v c$; If $K_v \rightarrow 0$, cannot form a neutron material ring structure, will form a solid ball supermassive neutron star, in under the action of gravity rapid collapse into a so-called mathematical singularity, leading to the total energy and gravitational field "divergence", the result is the universe at the speed of light contraction; If $K_v \rightarrow 1$, from (23.28) type, it is known that a black hole total energy also will be hundreds of thousands of multiplication, also will cause the entire galaxy rapid contraction; But the observed universe within the scope of this phenomenon are not seen. In our Milky Way galaxy speaking, visual optical galaxy scale genera - large, still have more complex vortex structure; Video of the oldest globular cluster surface stars age has more than 17 billion years. Silver spiral arm and blue young massive star formation; the whole galaxy's mass light than ten to twenty; the galaxy that is young galaxy, this visual optical galaxy life should be more than 80 billion years.

Therefore, the core of a galaxy, inside a black hole neutron material ring spin speed should try to take the little value to meet both neither can form solid spherical neutron star cause gravitational collapse form singularity, and won't make energy relativity quality increase too much, so the whole galaxy can extend life. Take $K_v = 1/\sqrt{3}$, $R_{2,1}$ has great value, it is neutron material ring cross section of great value.

24.2.2 Black hole total energy equation

In order to simplify the calculation behind the study, we make the whole inside a black hole or edge each neutron material ring total energy all are M_{ni} , rotation speed $K_v c$ are equal. Because $M_{ni} = 2\pi R_{1,i} \times \pi (R_{2,i})^2 \rho_{0n}$, as long as $R_{1,i} \geq R_{2,i}$, can think the neutron material ring in $\pi (R_{2,i})^2$ cross section on the particle spiral ring spin speed $K_v c$ unchanged.

By (24.10) type, to: in $\pi (R_{2,i})^2$ section on the density and the ρ_{0n} density of each neutron material ring are equal. By (24.8) type and Virial law, from center to outside, the first N_i a

neutron material ring circular motion equilibrium condition is:

$$\frac{GdM_{ni}N_iM_{ni}}{R_{1,i}^2} = \frac{dM_{ni}(K_v c)^2}{R_{1,i}}$$

$$M_{ni} = \frac{(K_v c)^2 R_{1,i}}{GN_i} \tag{24.12}$$

Make $K_v = 1/\sqrt{3}$, $R_{1,1} = R_{2,1} = 7112.39$ m, $N_1 = 1$, substituting (24.12) type, the center of the black hole first neutron material ring quality $M_{n1} = 3.1933 \times 10^{30}$ kg = $1.6055 M_\odot$ ($M_\odot = 1.989 \times 10^{30}$ kg for the mass of the sun).

By (24.12) type, black hole total quality N_iM_{n1} and outer neutron material ring distribution radius $R_{1,i}$ relationship for:

$$R_{1,i} = \frac{GN_iM_{n1}}{(K_v c)^2} \tag{24.13}$$

By (24.13) type see: each neutron material ring distribution of spherical shell spacing are: $\Delta R_{1,1} = 7112.39$ m. A total mass of black hole for $N_iM_{n1} = 10^{12} M_\odot$ substituting (24.13) type, : $R_{1,n} = 4.41 \times 10^{15}$ m = 0.466 light years.

Make (24.13) type of $K_v = 1$, then the Schwarzschild radius R_s for:

$$R_s = \frac{GN_iM_{n1}}{c^2} = 1.47 \times 10^{15} m = 0.155 \text{ (light years)} \tag{24.14}$$

Comparison: outer neutron material ring radius is the Schwarzschild radius 3 times. By (24.9) and (24.10), (24.11) and (24.13) type:

$$M_{n1} = 2\pi R_{1,i} \pi R_{2,i}^2 \rho_{0n}$$

$$R_{2,i} = \sqrt{\frac{M_{n1}}{2\pi^2 R_{1,i} \rho_{0n}}} = \frac{K_v (1 - K_v^2) c}{\sqrt{2\pi^2 GN_i \bar{\rho}_0}} = \frac{7112.39}{\sqrt{N_i}} m \tag{24.15}$$

Will the $N_i = \frac{1.98 \times 10^{42}}{M_{n1}}$ substitution (24.15) type, to: $R_{2,i} = 9.03 \times 10^{-3}$ m, is far less than the center.

The above all is only a simplified ideal structure model. In each neutron material ring centrifugal force and gravity center under the premise of fully balance, Virial theorem, it is known that the quality of each neutron material ring from inside to outside can press a series rules distribution, which each layer spherical shell spacing should also by Virial law to determine.

A combination of the calculation results comparison shows: if neutron material ring cross section radius $R_{2,i}$ went from the center to the outer (24.15) type narrowing. Thus it is not difficult to imagine: elliptical galaxy spherical and contraction, the central black hole inside and outside all neutron material ring, whole is spherical symmetric distribution; Spiral galaxy black hole in the middle part is quite a spherical symmetric distribution, edge inherit part of angular momentum, like galaxy edge as a disk distribution; Now already observed spiral galaxy active galactic nuclei and part of HengXingJi black holes in the disk accretion disk is obviously edge neutron material ring level and dust, gas mixed transition zone.

24.2.3 Each neutron material ring internal force analysis

By the virial theorem, each a neutron material ring occupies the whole ball shell thickness within the orbit of fixed space, black hole from center to outside, each a neutron material ring

in spin orbit radial only by gravity and centrifugal force F_m and F_n effect, the equal and opposite, complete balance, see figure 24.5. Vertical spin radius direction of each neutron material ring cross section from the shell of various neutron material ring their gravitation F_m and force F_b (see chapter 11 ~ 10 track point of contact in current ampere force) interaction and, in general, also should be in balance.

Neutron material ring is made from high and low energy π^\pm meson composed of particles spiral ring; it is designed to be curved cylindrical spiral. Refer to section 10.2 ampere force parameter calculation model, side by side the same layer particle spiral ring rail point of tangency place ampere force can be simplified calculation.

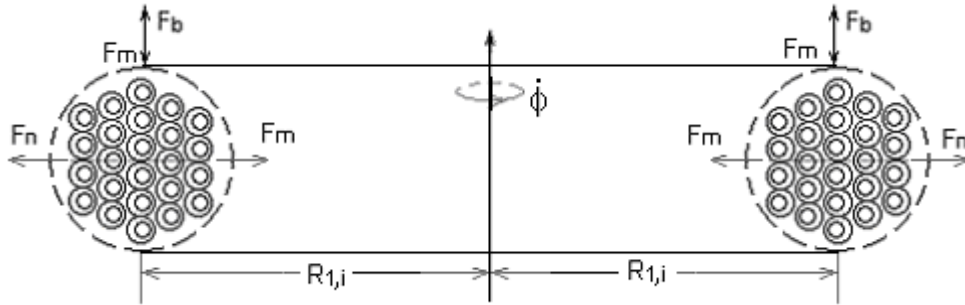


Figure 24.5 neutron material ring internal force diagram

By (10.11) type nuclear internal force forming principle: the same layer low-energy particle spiral ring rail point of tangency place has great ampere force, in figure 24.5 neutron material ring spin motion conditions for the performance of the repulsive force to overcome the compression function of the universal gravitation, see figure 11.2.

Because each neutron "disassemble" there are two low-energy π_d^- mesons, so, each particle spiral ring contains a number of negative N_e , by (23.1) and (23.2) type and energy theory of relativity, to:

$$N_e = 2 \times \frac{2\pi R_{1,i} \pi \bar{R}_\alpha^2}{\frac{4}{3} \pi \bar{R}_\alpha^3} = \frac{3\pi R_{1,i}}{\bar{R}_\alpha} \quad (24.16)$$

$$(\bar{R}_\alpha = 1.0289 \times 10^{-15} m) \quad (24.16)$$

By (10.7-1) and (24.11) type, the spin direction of low-energy particle spiral ring rail current I_θ for:

$$I_\theta = \frac{eK_v c}{2\pi R_{1,i}} N_e \quad (24.17)$$

By (10.7-2), track point of contact in the magnetic field strength B:

$$B = \frac{u_0 I_\theta}{2\pi K_r \bar{R}_\alpha} \quad (24.18)$$

By (10.9) and (24.16) ~ (24.18) type, each spin orbit point of tangency place ampere force F_b is:

$$F_b = \int_{K_r \cdot \bar{R}_\alpha}^{2K_r \bar{R}_\alpha} I_\theta B dl = \int_{K_r \cdot \bar{R}_\alpha}^{2K_r \bar{R}_\alpha} \frac{u_0 I_\theta^2}{2\pi K_r \bar{R}_\alpha} dl = \frac{u_0 I_\theta^2}{2\pi} \ln \frac{2K_r}{K_r \cdot} \\ = \frac{u_0}{2\pi} \left(\frac{3eK_v c}{2\bar{R}_\alpha} \right)^2 \ln \frac{2K_r}{K_r \cdot} \quad (24.19)$$

Table 2.1 an estimated: $2K_r/K_r = 2 \times 10^9$, then $\ln \frac{2K_r}{K_r} = 20.72$. Substituting (24.19) type, the maximum force: $F_b = 6773.2523$ (Newton).

For neutron material ring cross section on gravitation strength solution, it should be as infinite long cylinder, the gaussian symmetry principle, in the cross section in the gravitational field intensity E_{mr} for:

$$E_{mr} = 2\pi G \rho_{0n} R_{2j} \tag{24.20}$$

And the nuclear core force balance verification calculation method similar to each layer particle spiral ring, we as long as the calculation on the cross section width of a layer of particle spiral ring lateral interaction force. A neutron material ring cross section center gravitation accumulated F_{mr} , see figure 24.5, because each particle spiral ring wave orbital diameter for $2\bar{R}_\alpha$, reference (24.20), type to:

$$\begin{aligned} F_{mr} &= \int_1^{N_n} 2\pi G \rho_{0n} R_2 dm_n = 2\pi G \rho_{0n} \int_1^{N_n} 2N_n \bar{R}_\alpha \times \frac{4}{3} \pi \bar{R}_\alpha^3 \rho_{0n} dN_n \\ &= \frac{8\pi^2 G \rho_{0n}^2 \bar{R}_\alpha^4 (N_n^2 - 1)}{3} = 3.9794 \times 10^{-34} N_n^2 \text{ (Newton) } \tag{24.21} \end{aligned}$$

By (24.19) type, the calculated results and (24.21) values range league stand: neutron material ring cross section radius value range allows for: $R_{2i} = 8489.7126$ m, more than (24.11) and (24.15) type calculation value range.

And the conditions within the nucleus of the nuclear force forming principle similar, F_b force can also with the external force size, tensile, compression state adjust; So, for each neutron material ring cross sectional area size should be a black hole total energy, space distribution and force balance, and virial equilibrium theorem 4 aspects comprehensive consideration. For instance, we can balance from the nuclear force is preferred, with reference to the conditions within the nucleus of the force balance simulation calculation method, suppose that each neutron material ring cross sectional area are equal, took $R_{2i} = 7112.39$ m of great value. In this way, it is in the interior of a black hole gravitational field and electromagnetic force formed completely in balance and unity state. Of course, strong, weak interaction is actually electromagnetic interaction, so this is the interior of a black hole in the gravitational field and strong, the weak interaction, and electricity, magnetic interaction completely unified balance. Because the international day literati of the black hole the internal structure of the observation study also is basically blank, this paper is given here only black hole total energy, size, internal structure, avoid the gravitational collapse of the whole simplified model. Further analysis of the structure of the inside black holes, quasars spectrum supernormal value red shift, super star fusion physical evolution model and detailed calculation example see chapter 27.

24.2.4 Black hole accretion rate K_{mx}

When a black hole from accretion disk continuous accretion increases, it's the radius of the black hole R_1 will gradually increase. By (24.11) type, make black hole neutron material ring radius of the maximum $R_2 = 7112.39$ m for constant, also is the only black hole by a neutron material of ring.

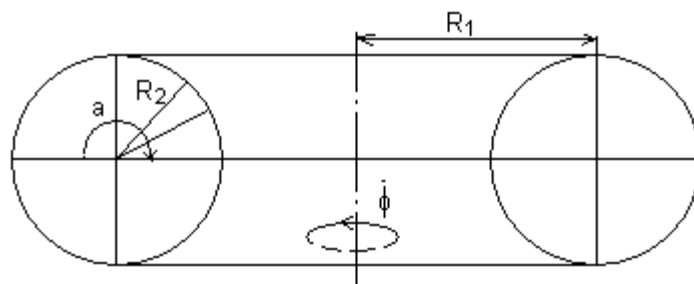


Figure 24.6 black hole accretion rates K_{mx} calculation principle diagram

At this point, if the idea, neutron material outside ring by high energy particles spiral ring composed of each layer neutron surface are such as crystal from accretion disk adsorption after growth step by step. Because the black hole neutron material ring radius $R_2 = 7112.39$ m for constant, so the inside of each layer neutron surface can only from the polar axis injection forming radio disc. So, by shown in figure 24.6, make each layer neutron particle spiral ring layer thickness of d_n , black hole accretion rate K_{mx} can be expressed as:

$$\begin{aligned}
 K_{mx} &= 1 - \frac{\int_0^{2\pi} \int_{\pi/2}^{\pi} (R_1 + R_2 \cos\alpha) R_2 d\alpha \cdot d\phi \cdot d_n}{\int_0^{2\pi} \int_0^{\pi/2} (R_1 + R_2 \cos\alpha) R_2 d\alpha \cdot d\phi \cdot d_n} \\
 &= 1 - \frac{\int_{\pi/2}^{\pi} (R_1 + R_2 \cos\alpha) d\alpha}{\int_0^{\pi/2} (R_1 + R_2 \cos\alpha) d\alpha} = \frac{2R_2}{\frac{\pi}{2} R_1 + R_2}
 \end{aligned}
 \tag{24.22}$$

By (24.22) type: when $R_1 = R_2$, namely the mass of a black hole for minimum value, $K_{mx} = 0.7779690593$; With $\frac{R_1}{R_2} = 10, 100, 1000, 10000, \dots$ is geometric series increases, the K_{mx} also are: 0.1197033994, 0.01265185126, $1.272429491 \times 10^{-3}$, $1.273158493 \times 10^{-4}$ a geometric series reduced.

The calculation result shows: the quality of smaller HengXingJi black hole, just formed accretion rate is bigger, like this is advantageous to the accretion new nebula formation quasars, (see chapter 27). The quality of the large XingXiJi central black hole, accretion rate is very small, almost tending to zero, so that the middle of the galaxy black hole quality increase very slow, it is beneficial to the whole galaxy, especially with small star ball shell galactic nucleus, which can maintain the longer optical galaxy's life, at the same time will be most galaxy disk material to polar axis radio disc way to polar axis ends radiation form new nebula. So as to change the whole galaxy original moment of momentum, (see chapter 25 ~ 27).

The middle of the galaxy to normal nuclear ball, polar axis ends with ball shell distribution of stars and nebulae, must by polar axis ends neutron material ring inner radiation form "jacking force", can effectively support balance and overcome black hole at the center of gravity of the stars and nebulae. And the core of a galaxy, a black hole is peripheral small star ball shell layer, and constantly to get polar axis injection forming new nebula supplements. The galactic nucleus internal shade material automatic transition cycle results will make the galaxy nuclear ball shell layer stars in life, far outweigh the galaxy nuclear peripheral star life.

We can thus further reasoning: the whole galaxy formation to death from all into large and small black holes, the total mass increase is limited. Make $K_v = \frac{1}{\sqrt{3}}$, the energy theory of relativity, increment ratio,

$$\frac{\Delta M}{M} = \sqrt{\frac{3}{2}} - 1.$$

The above shows that the entire universe total quality should be a constant, the universe is eternal.

25 Galaxy nuclear early characteristics and energy conversion, radiation mechanism

25.1. The core of a galaxy, early characteristics

Section 21.2 of galaxy formation and evolution has been reviewed. Day literati observed many violent activities of the galactic nucleus, quasars and Seyfert galaxy central star shape light nuclei are galaxy formation at the early stage of the galactic nucleus characteristics, we will all kinds of characteristic points above are as follows:

25.1.1 Quasars

It is often and active galactic nuclei share the name of, these kind of spherical main features are:

1. Highlights of

A quasar total photometric for $10^{43} \sim 10^{48}$ erg/s, equivalent to $10^3 \sim 10^4$ ordinary galaxy's total photometric, each band radiation energy comparison table 25.1.

Ordinary galaxy and active galactic nuclei photometric comparative

List (unit: erg/s) table 25.1

Type	Radio	Infrared	Optical	X-ray
Spiral galaxy	5×10^{38}	3×10^{42}	4×10^{43}	3×10^{39}
Radio galaxy	$10^{42} \sim 10^{45}$	2×10^{42}	1×10^{44}	3×10^{41}
Seyfert	$10^{40} \sim 10^{45}$	3×10^{46}	5×10^{43}	$10^{42} \sim 10^{45}$
quasars	$10^{44} \sim 10^{48}$	4×10^{47}	$10^{45} \sim 10^{47}$	10^{46}

2. Small scale

A quasar photometric change cycle is usually only a few hours or a few days, if the speed of light through the quasar time needed for meter that YuGuangCheng small diameter, $D < 0.2PC$.

3. The core for black holes

Chapter 24 have reasoning, to form the first condition of the galaxy is necessary to have a strong gravitational field, and have this condition can be massive black holes. Back then argument: huge energy conversion and the thermal radiation can only by the black hole gravitational potential energy and accretion content of total energy transformation to achieve.

4. Non thermal radiation spectrum

Quasars main energy in the form of non thermal radiation spectrum emission, spectrum flow strength F_ν , on frequency ν a power law distribution:

$$F_\nu \propto \frac{1}{\nu} \tag{25.1}$$

Some in optical and infrared band the thermal emission primarily continuous spectrum.

5. Light change phenomenon

Active galactic nuclei have some light is obviously change phenomenon, and light change cycle is irregular, optical variable time scale only a few hours to a few days of the order of magnitude of the longest, in a few years.

6. Injection phenomenon

From a radius less than 0.1pc nuclear area, can emit continuous energy $W > 10^{38}$ erg/s, spectrum from 1 Mev \sim 100 um (λ), most of the power law distribution of the electromagnetic spectrum.

25.1.2 Seyfert galaxy

The main features are:

1. The spectrum has obvious line of fire, including allows line, half forbidden line and forbidden line. Allow line width is wide, such as Baltimore not line Doppler width can reach 500 \sim 1000 km/s. According to the Buddha's galaxy line width is divided into Seyfert1, Seyfert2 two kinds, the former Ha full width $>$ 3000 km/s, the latter width of 500 \sim 1000 km/s.
2. Mother galaxy is generally spiral galaxy or Sa, Sb type, active galactic nuclei are star shaped dense nuclear, its size is only about 1 pc.
3. Continuous spectrum is blue or UV super, is a thermal spectrum or incomplete is thermal spectrum.
4. Absolute magnitude $M_v > -24^m$.

25.1.3 BL, Lac object (also called flash partial body)

The main features are:

1. The thermal type continuous spectrum: from the radio, infrared and optical even extended to X-ray band are performance is a hot type power law spectrum.
2. Quick light change phenomenon: the light change cycle is irregular, time scale from a few hours to a few months. Optical variable amplitude for magnitude, individual or even disastrous, and optical variable in the infrared and X-ray band also occur. Optical variable timing and band related, optical band is often hours or day's magnitude, radio band is on level to achieve.
3. High polarization, often 30%, polarization degree with the same wavelength, it the wavelength increase to decrease.
- 4 only very weak emission lines, explain that from the source to the observer, and the dust between lacks of nebula.

25.1.4 N galaxy

The main feature is the center has a bright star nuclear around low light extension nebula surrounded, the center on the color of the nuclear and quasars similar.

25.1.5 Star detonation galaxy

It is to point to have massive stars that exploded or are formed galaxy. Observation shows that: in the close spiral galaxy and irregular galaxy, about 10% of the galaxy with a strong infrared radiation, X-rays, and radio radiation, and shows strong nebula line of fire, all of these show that in the galaxy with a large number of stars explosive forming process. Star detonation galaxy formation time scale only about 10^7 years, mainly in the core region, scale is only about 1 Kpc and ordinary galaxy star forming region is in the galaxy disk or spiral arms.

According to hydrogen, helium line strength analysis, star detonation galaxy's effective temperature range is 38500 ~ 47000 k; According to the quality in $30 \sim 60M_{\odot}$ of O7 ~ O5 type star line, that age is only $10^7 \sim 10^8$ years.

Usually think star detonation galaxy is active galactic nuclei evolution predecessor, as the evolution of the initial stage, the star detonation galaxy and Seyfert2 are very similar, in great quality hot main sequence star formation stage.

25.1.6 Active galactic nuclei characteristics comprehensive comparison

A combination of the five types of active galactic nuclei characteristics, with a preliminary comprehensive physical model generalization, according to the active galactic nuclei integral structure dimension from the outgoing every ten times as many as in the difference of the physical structure is as follows:

1Mpc	Radio show source observed range
100Kpc	Radio injection phenomenon, in the radio injection around sometimes accompanied by satellite galaxy
10Kpc	Mother Galaxy, radio galaxy is generally an elliptical galaxy, Seyfert galaxy is generally spiral galaxy, quasars mother galaxy has not yet been forming, so generally not clear
1Kpc	the core part of the galaxy
100pc	Narrow line area
10pc	Star distribution of critical point, the outward injection also often start from here (injection are polar axis)
1pc	Wide line area
100mpc	dense radio nuclear, VLBI observable limit
10mpc	Continuous spectrum form area, accretion disk appeared
1mpc	UV radiation forming region
100upc	X-ray form area
10upc	Black hole

This chapter mainly discusses the content is limited to 1 Kpc within the scope of the galactic nucleus formation initial internal structure characteristics.

25.2 Galaxy nuclear energy conversion mechanism

Astronomers already know, a supernova release huge energy comes from gravitational field potential energy. Last chapter has been proved: formation neutron star or black hole, it's necessary to release the redundant gravitational field potential energy, can appear otherwise gravitational collapse, form the singular point; Moreover, according to the virial law, (24.11) type, the interior of a black hole neutron material ring spin speed and the ratio of the speed of light is constant, $K_v = 1/\sqrt{3}$. The available: black holes and neutron material outer ring peripheral nebula, dust accretion ring, also as long as meet the virial law, can form a stable accretion disk structure. Set accretion ring material for dm , surrounded by a black hole of the material and the inside of the amount of matter of accretion disks for $N_i M_{n1}$, around black holes circular motion velocity v_θ , $v_\theta \leq c/\sqrt{3}$, the:

$$\frac{GdmN_i M_{n1}}{R_{1,n}^2} = \frac{dmv_\theta^2}{R_{1,n}}$$

$$v_\theta = \sqrt{\frac{GN_i M_{n1}}{R_{1,n}}} \tag{25.2}$$

The type description: from the accretion disk outer inward, spin velocity v_θ increase gradually, into a neutron material ring critical radius for $R_{1,n}$. Make nebula, dust rest energy for $m_0 c^2$, when the accretion disk peripheral enter inside the outer ring to neutron material, spin speed to $v_\theta = c/\sqrt{3}$. The energy theory of relativity, increase the kinetic energy of W_v for:

$$W_v = m_0 c^2 \left[\frac{1}{\sqrt{1 - (v_\theta/c)^2}} - 1 \right] \tag{25.3}$$

A nebula, dust was accretion process black holes in the gravitational field work for W_u , from (24.13) differentiate type:

$$dR_{1,n} = \frac{-2GN_i M_{n1}}{K_v^3 c^2} dK_v \tag{25.4}$$

$$W_u = \int_\infty^{R_{1,n}} \frac{GN_i M_{n1} m_0}{R_{1,n}^2 \sqrt{1 - K_v^2}} dR_{1,n} \tag{25.5}$$

Will (24.13) and (25.4) type substitution (25.5) type, have to:

$$W_u = \int_0^{K_v} \frac{2m_0 K_v c^2}{\sqrt{1 - K_v^2}} dK_v = 2m_0 c^2 \left(1 - \sqrt{1 - K_v^2} \right) \tag{25.6}$$

Gravitational field potential energy and accretion disk material kinetic energy ratio for:

$$\frac{W_u}{W_v} = 2\sqrt{1 - K_v^2} \tag{25.7}$$

When $K_v = 1/\sqrt{3}$, $W_u/W_v = 1.63299$ times greater than that gravitational field potential new inside a black hole, the kinetic energy of the poor, is a black hole in accretion process should be the energy release of the ΔW_{uv} train. By (25.3) and (25.6) type, have to:

$$\Delta W_{uv} = m_0 c^2 \left(3 - \frac{3 - 2K_v^2}{\sqrt{1 - K_v^2}} \right) = 0.14226 m_0 c^2 \tag{25.8}$$

As shown in figure 25.1 shows, nebula, dust was accretion process in the position of the energy change is as follows:

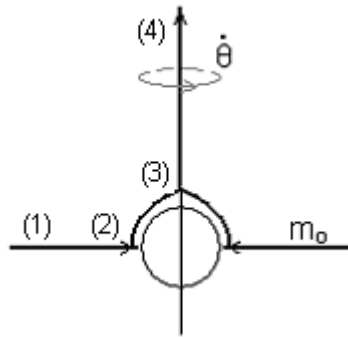


Figure 25.1 black hole peripheral accretion disk energy conversion plans
 In the accretion disk starting point, set $v_\theta = 0$:

$$(1) \quad m_0 c^2 \tag{25.9}$$

$$(2) \quad \frac{m_0 c^2}{\sqrt{1 - K_v^2}} + 2m_0 c^2 (1 - \sqrt{1 - K_v^2}) \tag{25.10}$$

In the neutron material ring edge, the total energy to kinetic energy, potential energy and its own energy $m_0 c^2$ combined.

$$(3) \quad \frac{m_0 c^2 (1 - K_{mx})}{\sqrt{1 - K_v^2}} + 2m_0 c^2 (1 - \sqrt{1 - K_v^2}) \tag{25.11}$$

$(0 \leq K_{mx} \leq 1$ Said accretion rate)

$$(4) \quad \frac{m_0 c^2 (1 - K_{mx})}{\sqrt{1 - K_v^2}} + 2m_0 c^2 (1 - \sqrt{1 - K_v^2}) - 2m_0 c^2 (1 - K_{mx}) (1 - \sqrt{1 - K_v^2}) \tag{25.12}$$

(25.12) type the last item for polar axis injection to overcome the central black hole gravitational field potential loss of energy, and ultimately the total energy released ΔW_{uv} for:

$$\Delta W_{uv} = \frac{m_0 c^2 (1 - K_{mx})}{\sqrt{1 - K_v^2}} + 2m_0 c^2 (1 - \sqrt{1 - K_v^2}) K_{mx} \tag{25.13}$$

By (25.13) type see:

When $K_{mx} = 0$, no accretion, and final $K_v = 0$, $\Delta W_{uv} = m_0 c^2$, accretion content from the accretion disk outer transferred to polar axis injection direction.

When $K_{mx} = 1$, are all accretion, release the gravitational potential energy $\Delta W_u = 2m_0 c^2 [1 - \sqrt{1 - K_v^2}]$.

When we make $K_v = \frac{1}{\sqrt{3}}$ for constant, black holes in the entire galaxy life period, total quality, radius smoothly increases, the release of gravitational potential energy and the central black hole size, the

quality has nothing to do with the accretion rate only K_{mx} relevant. When we by the law of conservation of energy deducted black hole kinetic energy increment, the (25.8) type, $\Delta W_{uv}/m_0c^2 = 0.14226$ for constant that massive black holes accretion disk to the material energy conversion rate is 14.226% of the energy theory of relativity rest mass, which is about the fusion of stars burn conversion 20 times! This is the core of a galaxy, quasars huge capacity mechanism of reason.

25.3 The core of a galaxy spectral radiation mechanism

25.3.1 Galaxy nuclear each ring area structure, the combination of the characteristics and the forming principle

Comprehensive day literati observations and physical model in this paper see figure 25.2, we first to dust YunHuan, accretion disk and the central black hole composition, physical characteristics description:

1. Dust YunHuan: including peripheral neutral hydrogen cloud, ionization hydrogen cloud area, form the galaxy's early residual nebula or peripheral stars and debris by the central galaxy nuclear strong gravitational field suction; Because orbit radius reduced, spin speed increase to thousands of kilometers per second, star or debris was tearing into nebula or meteorite fragments; Be accretion disk radiation photon energy heating, gasification, the temperature can reach $10^4 \sim 4 \times 10^4 k$, forming high temperature excitation radiation dust YunHuan; Peripheral for thin neutral hydrogen cloud, or is ionized hydrogen cloud diffusion zone.

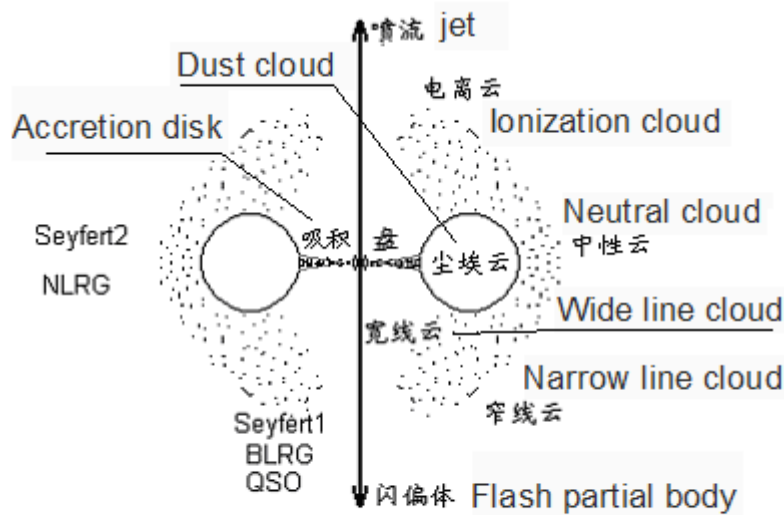


图25.2 活动星系核的统一模型示意图、图周围标出的是天体所在的观测方向

Figure 25.2 active galactic nuclei unified model diagram, drawing around the mark is the observation direction objects

2. Accretion disk: YunHuan dust in a small amount of material continuously by the central black hole accretion; In the accretion, spin motion process due to the radius reduced, the speed increase, all kinds of complex molecules, atoms has been torn into similar nuclear the internal structure of the particle spiral ring; Due to the negative and positive role to attract each other, each particle spin velocity v_θ must be equal, they form from inside to outside of the high-energy π_g^+ meson, low-energy π_d^- meson and high energy electron e^- three trap close synchronization spin motion of particles spiral ring. In the accretion process, the kinetic energy increase gradually, residual gravitational potential energy is constantly stimulating neutrino field of neutrino, forming a continuous non thermal radiation spectrum. Finally, when the accretion of particles spiral ring to neutron material ring near or on the surface, and high and low energy π_g^+, π_d^- meson particle spiral ring and the nucleus, similar to happen ϵ decay, high energy electron adsorption a neutrino into low energy π_d^- meson into low energy π_d^- meson orbit, finish $2\pi_g^+ + \pi_d^- + \text{electronic} + \text{neutrino} \rightarrow 2\pi_g^+ + 2\pi_d^-$ conversion process. In the last stage, the residual gravitational potential energy and decay in redundant energy all stimulate neutrino field of neutrino into X- rays or gamma radiation.

(3) From the virial theorem can see: dust YunHuan spin speed is $500 \sim 1000 \text{ Km/s}$, accretion disk spin speed should be from outside to is $(1000 \sim 3000 \text{ Km/s} \rightarrow c/\sqrt{3})$.

25.3.2 Accretion disk residual gravitational potential energy radiation mechanism

By (25.8) type, make K_v for variables, $K_v = 0.0033 \rightarrow 1/\sqrt{3}$, to ΔW_{uv} to differentiate:

$$\Delta W_{uv}' = \frac{m_0 c^2 K_v}{\sqrt{1 - K_v^2}} \left(\frac{1 - 2K_v^2}{1 - K_v^2} \right) \quad (25.14)$$

Every small ring accretion disk m_0 spin speed change area ΔK_v residual gravitational potential energy ΔW_{uvi} for:

$$\Delta W_{uvi} = \frac{m_0 c^2 K_v}{\sqrt{1 - K_v^2}} \left(\frac{1 - 2K_v^2}{1 - K_v^2} \right) \Delta K_v \quad (25.15)$$

By the quantum physics, each photon energy $W_{\gamma i}$, and frequency ν_i , Planck constant h relationship for:

$$W_{\gamma i} = h\nu_i \quad (25.16)$$

Obviously, a band $F_{\nu i}$ total emission and photon energy $W_{\gamma i}$, residual gravitational potential energy train W_{uvi} relationship for:

$$F_{\nu i} W_{\gamma i} = \Delta W_{uvi}$$

$$F_{\nu i} = \frac{m_0 c^2 K_{\nu i}}{\sqrt{1 - K_{\nu i}^2}} \left(\frac{1 - 2K_{\nu i}^2}{1 - K_{\nu i}^2} \right) \frac{\Delta K_{\nu i}}{h\nu_i} \quad (25.17)$$

By (25.17) type see: $F_{\nu i}$ and frequency ν_i not only show the relationship between the power law (25.1) type relationship, but also with the spin velocity coefficient $K_{\nu i}$ and speed factor interval $\Delta K_{\nu i}$ relevant.

25.3.3 Active galactic nuclei unified model, wide line, and narrow pattern formation mechanism

First of all, to active galactic nuclei, can confirm is optical galaxy formation of early central galaxy nuclear. According to the characteristics of the type of difference nature evolution sequence according to the arrangement for:

1. N Galaxy. → 2. BL Lac (Flash partial objects) . → 3. Quasars. → 4. Star detonation galaxy. → 5. Seyfert1 → 6. Seyfert2 → 7. Normal galaxy nuclear.

From section 21.2 infinite eternal cosmological bases and the model has been preliminary description: a large galaxy formation, general from globular cluster → small galaxy, → medium galaxy → large galaxy after many times regeneration nebula supplementation, just gradually by their own gravitational field of the development of accretion. Of course, this also includes an elliptical galaxy, barred galaxy and spiral galaxy their original spin total angular momentum adaptive development.

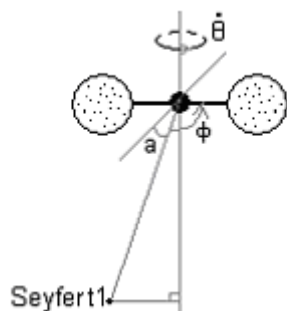


Figure 25.3 Seyfert1 observation spectral broadening schematic diagram

So, the above 6 kinds of active galactic nuclei from the given the quality of the stellar debris through the accretion other renewable nebula, peripheral residual nebula, dust in the process, the central black hole original quality gradually change, the nucleus of galaxy formation and evolution process of each period should appear from different types and our observation Angle should see characteristics.

By (25.15) type, figure 25.1 can see: Annular dust cloud medial spin speed of 1000 Km/s, speed coefficient $K_{va} = 0.0033$, in the accretion disk inside into neutron material ring, speed coefficient $K_{vb} = 1/\sqrt{3}$ to mean respectively substitution (25.15), type:

$$\begin{aligned} \Delta W_{ivi} &= \left(\frac{1+0.5}{2} \right) \frac{m_0 c^2 K_v}{\sqrt{1-K_v^2}} \Delta K_v \\ &= 0.75 \frac{m_0 c^2 K_v}{\sqrt{1-K_v^2}} \Delta K_v \end{aligned} \tag{25.18}$$

Make accretion rate K_{mx} , speed interval ΔK_{vi} for constant, from (25.18) type known: the accretion disk edge to medial spin velocity increases, the total energy photon radiation also increase, Because the whole universe 2.73 K blackbody radiation is isotropic, so, the accretion disk per unit area on the launch of the photon number should also be the same.

By inference: accretion disks inside radiation each photon energy bigger, shorter wavelength. The figure 25.2 and figure 25.3 see, without the dust ring stop, we observed from the accretion disk directly on emission Seyfert1 type spectral Doppler broadening should be:

$$\Delta Z = \pm \left(0.0033 \rightarrow \frac{1}{\sqrt{3}} \right) \cos \alpha \sin \phi \tag{25.19}$$

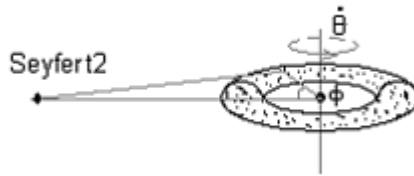


Figure 25.4 Seyfert2 observation spectral broadening location plan

Theis observation position and accretion disk plane Angle, Φ for accretion disk spectral radiation position and observer, polar axis plane constitute a Angle. Moreover, the photon energy is higher, accretion disk spin greater speed, the greater the Doppler broadening.

Similarly, we observed the narrow line spectrum is mainly composed of dust ring outer launch out, see figure 25.4. If dust ring outer spin speed of 500 km/s, inside for 1000 km/s, the different observation Angle can see Doppler apparent to speed difference, observed broadening should be:

$$\Delta Z = \pm (0.0017 \rightarrow 0.0033) \sin \phi \tag{25.20}$$

25.3.4 Normal galaxy nuclear internal structure and energy conversion mechanism

Normal galaxy nuclear show by the active galactic nuclei further evolution, make the dust YunHuan, neutral hydrogen cloud, ionized hydrogen cloud (hereinafter referred to as the dust gas clouds) a ball shell enclosed encase black holes and accretion disk, the appearance of the entire galaxy nuclear spherical. Peripheral along the spherical shell uniform distribution of stars are rigid motion. With the evolution of the galaxy contraction, the central galaxy nuclear volume, quality relative peripheral visual optical galaxy proportion increase gradually. Early active galactic nuclei of dust gas cloud ball shell unfinished totally enclosed, initial black holes, the size of the accretion disks are small, accretion disk on the band spectral radiation and optical variable can be directly observed. Middle aged and elderly galaxy nuclear dust gas cloud ball shell is completely closed, and has considerable thickness, the foregoing band electromagnetic radiation and light change cannot be observed.

Dust gas cloud of black holes surrounded by ball shell is isolation layer, but also energy absorption layer. In order to overcome the central black hole strong gravitation, to maintain balance, in addition to their own part of the rotary motion of the centrifugal force, internal accretion disk on accretion content gravitational potential energy release into high energy photon radiation form the great light pressure, its strength should be enough to hold and hold dust gas cloud ball shell; (front has been proved that the core of a galaxy, a black hole center by the accretion disk accretion content release of gravitational potential energy, is the star of the nuclear fusion within twenty times! . At the same time, most of the photon energy is absorbed, make its transformation to

visible light and infrared band, and dust gas cloud shell of gaseous atomic, molecular stimulated, transition produce new visible and infrared electromagnetic wave together to form strong infrared emission source; Also make the old galaxy nuclear central black hole accretion disk spectral radiation due to the effect of strong gravitational field generates a large red shift.

By (25.8) type, figure 25.1 can see: the accretion disks angular momentum loss, gravitational potential energy release will inevitably result in polar axis direction of the radio and injection. As for the polar axis of symmetry radio disc forming principle, the figure 25.1 shows that is residual accretion thing, along the time axis direction injection to a certain position, kinetic energy after running; And again the ion, protons, electrons recombining into neutral hydrogen clouds and dust gas cloud process, electronic transition is generated when.

The elliptical galaxy galaxy nuclear, internal structure and spiral galaxy similar, the difference only lies in the accretion disk and disk family stars of the moment of momentum more small; So, their radio and reddening is comprehensive, the polar axis injection characteristics was not significant.

26 All kinds of galaxy, cluster characteristics and formation, evolution principle

26.1 All kinds of galaxy characteristics

26.1.1 Galaxy classification

At present day literati with Hubble classification will galaxy according to morphological characteristics in three categories, see figure 26.1. The author only added a optical galaxy evolution, the contraction in the direction of the line.

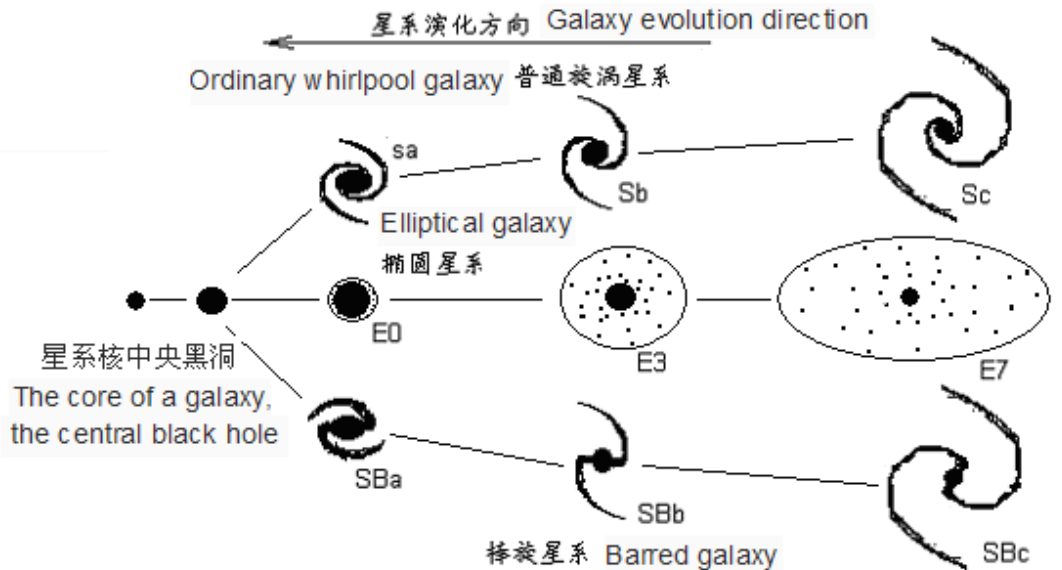


Figure 26.1 the galaxy's Hubble classification, evolution diagram

1. The elliptical galaxy: code E, often is flat scale in the back. Definition of flat for: $n = 10(a - b)/a$, a and b is half long shaft and half short shaft. The n is divided into eight grade 0, 1, 2,... 7. Please note that we see is only apparent flat degrees, really flat degree due to the short shaft orientation not clear not sure.

2. Spiral galaxy: segmentation ordinary spiral galaxy and barred galaxy, code for S, SB. According to the galaxy nuclear size and slewing closure degree in turn into So, Sa, Sb, Sc and SBa and SBb, SBc type.

3. Irregular galaxy: irregular galaxy and divided into two kinds, code Irr I, Irr II. The former shows that tear shape, surface brightness is low; there is no obvious slewing or nuclear structure, the latter completely irregular.

4. Other types: in recent years to classic Hubble classification added some other types, such as:

- (1) Sd or SBd type, nuclear small, slewing intermittently, belong to a shapeless vortex or barred galaxy
- (2) The Sm type: MaiZheLun cloud type galaxy
- (3) DE type: short elliptical galaxy, quality is very small, some with globular cluster almost
- (4) CE type: special giant elliptical galaxy
- (5) CD type: for super giant diffuse galaxy, often have several galactic nucleus, whole looks elliptical galaxy
- (6) Radio galaxy: there is obvious radio radiation, the galaxy shapes
- (7) Active galactic: including the Buddha's galaxy, radio galaxy and quasars

All kinds of galaxy number according to the Vandenberg statistical results see table 26.1:

The number of all kinds of galaxy statistical results distribution table table 26.1

kind	E+SO	Sa+SBa	Sb+SBb	Sc+SBc	Irr	Other kinds
------	------	--------	--------	--------	-----	-------------

百分比%	22.9	7.7	27.5	27.3	2.1	12.5
------	------	-----	------	------	-----	------

26.1.2 The main characteristics of all kinds of galaxy

1. The galaxy's mass light than M/L

All kinds of the galaxy's mass light than M/L, which shows the galaxy physical property, the dark matter content; evolution process is an important parameter. You can be sure: type, size the same visual optical galaxy, qualitative light, and the greater than this optical galaxy of the age. As shown in the figure 26.1, table 26. 2.

In the same galaxy different position, qualitative light ratio is not the same. Such as the Milky Way, in the sun position orbit radius R_{\odot} inside, $M/L = 10$; In the $2 R_{\odot}$ inside, $M/L = 15 \sim$ twenty; In the ten R_{\odot} inside, $M/L = 30$. Shows the distribution of dark matter is not uniform, the visible light in the edge of the galaxy and peripheral galactic halo of dark matter, a much higher percentage.

All kinds of the galaxy's mass light than table table 26. 2

galaxy kind	mass light than	galaxy kind	mass light than	galaxy kind	mass light than
E	20~40	Sa、SBa	10~13	Sc、SBc	<10
SO	10~15	Sb、SBb	about 10	Irr	about 3

3. The rotation of the galaxy

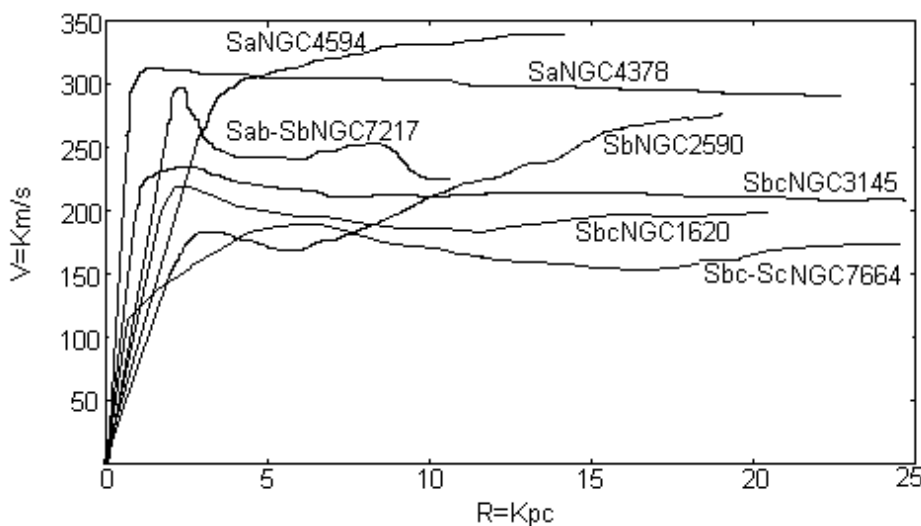


Figure 26.2 7 spiral galaxy rotation speed curve

X axis is to center distance, R, ordinate is rotational velocity

Observation results show that the general spiral galaxy are obvious rotation movement, see figure 26.2. The center of a galaxy is rigid rotation; speed is proportional to the distance to the rotation. From the slewing began to outside, speed is gradual change. In the outer part of the galaxy, Kepler's rotational speed, inverse ratio to the square root of orbit radius. This peculiar rotation movement, is dark matter distribution has certain law, followed by further analysis.

26.1.3 All kinds of galaxy feature comparison

Generally speaking, the quality of the elliptical galaxy is the largest, spiral galaxy is the second smallest, and irregular galaxy minimum. Evolution rate the fastest is elliptical galaxy, due to the nebula, stars around the galaxy nuclear spin speed is very small, the lack of centrifugal force to balance gravitation; When an elliptical galaxy preliminary formed, almost all nebula gases into stars at the same time, little interstellar medium; Therefore, elliptical galaxy almost all of the stars, the stars belong to the family of star II. Round optical galaxy life, star replacement may only have a few generation, from massive stars evolve rapidly to the quality of the small stars. On the structure, the center of the elliptical galaxy density is high, its density change and to center distance is inversely proportional to the vertical $\rho \propto R^{-3}$ that shrinkage soon.

Spiral galaxy mainly by the nuclear and slewing is composition, the core part and elliptical galaxy similar, mainly by the old stars form. Slewing in part by the stars and interstellar medium gas is composition, including common young and massive stars.

British astronomer Rees 1977 think there III family of stars, star family III answered in arthritic galaxy peripheral halo; Especially spiral galaxy, peripheral there is a spherical structure of the big halo shell; The early formation of star family III, (most has become a neutron star, a White Dwarf, black dwarf) distribution in the halo of. This kind of speculation book model would have to be sure. In all optical galaxy peripheral halo, even halo peripheral already dim the nebula group area, should exist in the early formation of star family III and globular cluster; Optical galaxy (such as the Milky Way) from the peripheral and central and edge and center of the quality of light than in turn reduce is valid proof.

Galaxy optical color reflects the quality of the stars and the temperature of the surface by Hector ROM diagram can also calculate the age of the stars. The observation comparison, general elliptical galaxy than spiral galaxy are more red, irregular galaxy partial blue. Spiral galaxy the outer part and nuclear ball area is different, when nuclear ball area bigger or slewing crimple, color red.

Comprehensive this section of galaxy characteristics and discusses previous chapters, we can preliminary inference is as follows:

1. The irregular galaxy quality small, qualitative light, star than small slant blue color, it is the embryo of the galaxy.
2. The size of the galaxy in batch by batch accretion new nebula group's development and growth process, the total moment of momentum has inherited and conservativeness. It is spiral galaxy, get new nebula supplements after growth is still spiral galaxy, originally is elliptical galaxy further development is still an elliptical galaxy, (assuming new nebula group's moment of momentum are small).
3. All optical galaxy in every stage of the evolution process, the nebula, stars and visual optical galaxy range is gradually shrinking, the core of a galaxy, gradually change, slewing gradually tightening spiral galaxy, in the middle of the optical part eventually evolved into dense elliptical galaxy.
4. All optical galaxy in every period in the process of evolution, with the age change, qualitative light than bigger star color red.

26.2 All kinds of cluster characteristics

26.2.1 Cluster classification

Galaxy lumps sex can and stars in the Milky Way clouds sex than similar. According to the rich degree points 5 levels, see table 26.3.

Galaxy lumps of rich level meter table 26.3

Rich degree level	Galaxy number	North days of cluster number
0	30~49	10
1	50~79	1224
2	80~129	283
3	130~199	68
4	200~299	6
5	300~	1
Note	Statistical scope of north day red shift value $Z = 0.02 \sim 0.2$ range	

Cluster form, can be generally divided into regular and irregular, the former form is symmetrical round or quasi circular distribution; the latter have no obvious center and symmetrical shape boundary. Leave our recent and the largest Virgo cluster is a typical irregular cluster.

If according to the cluster member classification, can be divided into:

1. CD cluster, CD type galaxy refers to some cluster found supersized elliptical galaxy, its star cladding may extend 100 Kpc, general distribution in the dense type cluster (a galaxy/Mpc³). Part of the CD type galaxy

and multiple galactic are nucleus. In CD cluster, the proportion of all kinds of galaxy is about E: So: S = 3:4:2, spiral galaxy accounted for only 20%, galaxy distribution regularly to center intensive.

2. Rich spiral galaxy type, the proportion of members of the galaxy for E: So: S = 1:2:3, members of the spiral galaxy is 50%, galaxy distribution is irregular, and center density is very low.

3. Lean spiral galaxy type, the rest of the cluster can be referred to as lean spiral galaxy type, its members ratio for E: So: S = 1:2:1, members galaxy clusters in the distribution between between 1 to 2.

The members of the galaxy distribution also have obvious difference, CD type and lean spiral galaxy type, spiral galaxy most distribution in the peripheral and central part mainly is the elliptical galaxy and So galaxy. Rich spiral galaxy type, all kinds of galaxy distribution is consistent with the basic.

26.2.2 Cluster quality and dark matter

The quality of the cluster can directly use dynamics method, from the virial theorem and out. A detailed study of the Coma cluster is its members about 800. If the $R = 16 \text{ Mpc}/h$, it is concluded that the total quality:

$$\sum M = 1.79 \times 10^{15} M_{\odot}/h$$

And the center part of the radius R less than 1Mpc ball area, quality have $\sum M = 6.1 \times 10^{14} M_{\odot}/h$.

The central part of the quality of light than for $350 M_{\odot}/L_{\odot}h$. In general, the cluster of the quality of light than are 100 ~ 300 that exist in the cluster of dark matter more than ten times more than a single galaxy. Mentioned before, we will star debris neutron stars, black holes, a White Dwarf, black dwarf and dead galaxy, galaxy group, all too dark matter. So, cluster middle light than far outweigh the each galaxy internal quality light ratio, is enough to indicate that there has been a considerable proportion of death and the whole galaxy galaxy group remains there.

26.3 galaxy formation and evolution principle

26.3.1 Nebula regeneration

Front has already proved, the universe has more than 90% of the dark matter, they are dead the whole galaxy group, galaxy or star debris, and some meteorite fragments, dust and nebula residual.

Among them was part or most of the dark matter concentrated in the center of the galaxy nuclear neutron material universal huge black hole. All the bright, dark matter in their bodies under the action of gravity field attracts each other, moving around.

When the quality of similar galaxy nuclear center massive black hole, the neutron star or black hole HengXingJi in under the action of gravity field attract each other conflict, it will destroy the balance of the neutron material stable structure, and lead to complete the big bang. All the gravitational potential energy and kinetic energy and its own energy all into neutron, high, low energy π^{\pm} meson energy relativity kinetic energy, and overcome the gravitational potential energy explosion diffusion into neutron cloud, high can π^{\pm} meson clouds. Then quickly decay, regroup into protons, electrons and photons or neutrino, the formation of a hydrogen element is given priority to, rich in d, helium two elements of new nebula group. If it is two galaxies nuclear center massive black hole to conflict big bang, the total energy is it can be imagined. The big bang formation of very large scale, large energy new nebula group, and the particle energy and γ -ray energy must follow the probability curve distribution. At this time, high energy happened γ -ray bursts and proton ray is not surprising. See figure 26.3 two black holes conflict big bang form new nebula schematic diagram. Because most of the galaxy, the dark matter objects have mutual winding motion, and the distance between the larger, so this can collide less likely. This is the dark matter celestial far more than the root cause of the Ming material objects.

Common quality is similar or greater difference between galaxy nuclear center hole, neutron star or black hole in the gravitational field Quality as stars Level of black holes attracted to each other under the action of a close winding motion, this will inevitably occur the phenomenon of the law of the jungle. Moreover, the structure, density, the same quality, is stronger of the gravity. Quality small galaxy nuclear and even the whole galaxy will gradually be massive galactic nucleus all swallowed. Be out of the neutron material ring will be along the accretion disk transfer, in part, by adsorption, part of the polar axis jet formation neutron flow injection and symmetrical radio disc. Valve area is neutron decay, protons, electrons with the formation of hydrogen cloud area, see figure 25.1 and figure 26.3.

This kind of compact source devouring, injection phenomenon also can form new nebula group, and is the common phenomenon. Have many scholars pay attention to the density of the huge source radio area often

satellite galaxy distribution. The main galaxy engulfed in weak growing in the galaxy, until the two quality similar galaxy check thoroughly into the big bang, all into a super new nebula group so far. Please note: dark matter conflict completely big bang into bright material new nebula group's process, can cause the regional gravitational potential energy is reduced, the surrounding objects of the gravitational field strength become smaller, it will lead to the galaxy around objects of the orbits of the original large adjustment. The above two kinds of produce new nebula group way process will not rule out some d, the synthesis of helium. Of course, also does not exclude the nebula group of other small galaxy, dark matter and residual stars.

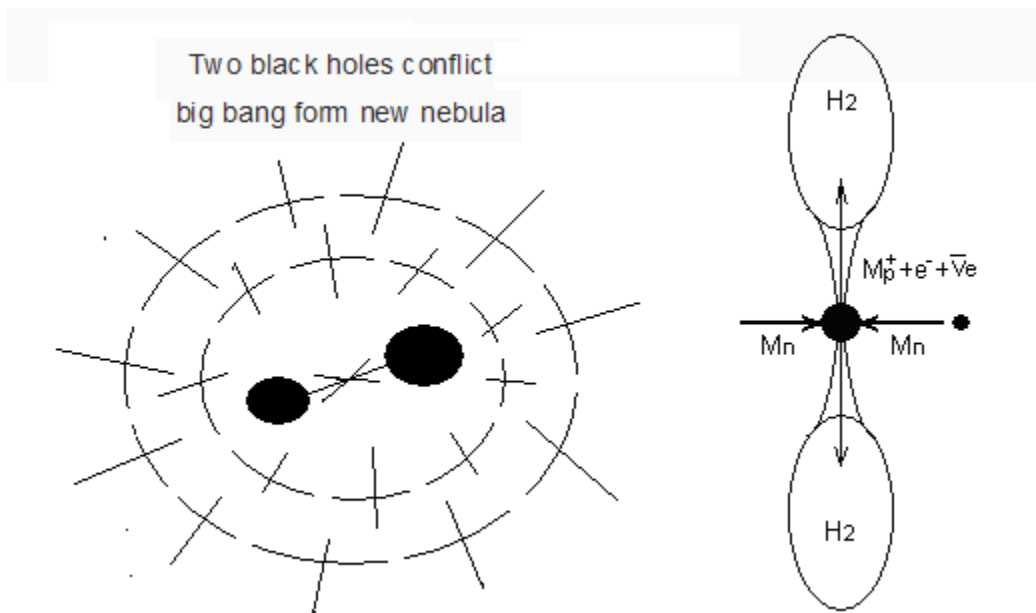


Figure 26.3 Two black holes conflict big bang form new nebula and Devour process polar axis radio nebula group forming principle diagram

The universe is not death galactic nucleus, stars or its wreckage White Dwarf, brown dwarfs are also will appear conflict explosion or close up the phenomenon. Also can produce radio and injection, but they have not the nebula is completely hydrogen cloud, still can clip some residual stellar gas cloud, meteorites, dust and other impurities.

26.3.2 Galaxy the formation and evolution of the principle

For each new nebula group, regardless of their size, to be sure, are in a large number of local uneven distribution of dark matter and not death galaxy, stars of the gravitational field attracted to each other to contain the role. Just like the surface of the earth's atmosphere as the clouds, floating in the space. So, the dark matter in the universe or not death galaxy, stars sometimes just through the nebula group also becomes possible.

If new nebula group gravitational field around a radial uniform distribution, the lack of a clear direction; So, in the nebula cluster centre some residual stars, galaxy and remains under the action of the gravitational field, can form a sphere, a spherical symmetry of the galaxy. If nebula group is big enough, it also has the potential to develop CD type cluster. Of course, if the nebula group is bigger, center residual galaxy and remains more than one, so, forming super huge dispersion type elliptical galaxy contains multiple galactic nucleus is not surprising. If the nebula group around the bright, dark matter total gravitational field have a obvious directivity, nebula group is located in two galaxy or two main gravitational field between center, or there are a certain direction of mutual winding rotary motion. The nebula group will be stretching and rotating, form the original vortex nebula group, in the center gravity field or small galaxy under the action of the gravitational field, may directly formed spiral galaxy. For any a galaxy or spherical form evolution, as long as not from accretion disk to polar axis injection, so, the original galaxy or objects, and accretion of the nebula total moment of momentum should exist inheritance and conservativeness.

To sum up, decided to form spiral galaxy or elliptical galaxy conditions mainly new nebula group and within the scope of the original Ming and dark matter the total moment of

momentum. This is also different cluster in different space position distribution of different types of the main reasons for the galaxy. Moreover, galaxy, dark matter and nebula group is the relationship between the evolution of batch by batch, has formed the optical galaxy gradually contraction, nebula batch by batch adsorption added, the whole galaxy is one period development process. Eventually the two large and superlarge galactic nucleus and will in the universal gravitation field under the action of gravity collide into super big bang all new nebula groups.

26.3.3 Galaxy internal structure forming principle

Whether elliptical galaxy or spiral galaxy, composed of stars can be divided into star family I, star family II and galactic halo of star III family. The difference between them is just before the different proportion of. For all the middle aged and elderly galaxy galaxy nuclear, in chapter 25 have argument, there is a layer of completely closed the central black hole dust gas cloud ball shell and stars form ball shell. Similar inside a black hole neutron material ring spin motion combination, we can will dust gas clouds, star family II, star I into the family along the different spin orbital motion direction, to the central black hole formation totally enclosed spherical shell combination. As for the Milky Way, the family I spin motion axial main point to spiral galaxy nuclear polar axis, globular cluster and star family II spin motion axial were radial symmetry distribution.

The figure 26.2 shows, the core of a galaxy, a ball star main is rigid motion. A nuclear ball in the layer of stars, black holes, total quality, the average density of ρ_0 , the star around the galactic nucleus movement orbit radius in the total quality is surrounded by $4\pi R^3 \rho_0 / 3$. By the virial theorem, each of the mass of the sun star balance spin movement condition is:

$$\frac{\frac{4}{3} \pi R^3 \rho_0 G M_{\odot}}{R^2} = \frac{M_{\odot} (\dot{\theta} R)^2}{R} \quad \dot{\theta} = \sqrt{\frac{4}{3} \pi \rho_0 G} \quad (26.1)$$

By (26.1) type, that the nuclear ball rotation movements in angular velocity $\dot{\theta}$ are constant, maintain rigid body motion, ρ_0 has to be constant, also is the nuclear ball in each layer of the star quality, life, interval, density must tend to be consistent. Stars along the spin orbital motion of the radial force is 0, vertical radial direction of the spherical between stars gravitational attraction force must contain zero. To meet this condition can be close to the quality of the formation of small, and a long life and small stars.

26.3.4 Spiral galaxy's spiral arm forming principle

Front has reasoning, original spiral galaxy's spiral arm has been initially formed. When galaxy each absorption a period after the nebula is gradually evolving process, because the arms of the original Ming, the initial concentration, the dark matter in the gravitational field long-term interaction effect, can make the original Ming, dark matter and new absorption of the nebula further to galactic nucleus and slewing center focus; Plus galaxy ends slewing in spin movement will automatically adjust make both ends slewing total mass, angular momentum tend to be more symmetrical; So, with the evolution of the galaxy, slewing will tend to clear by fuzzy, the complex tend to be simple, the asymmetry tend to complete symmetry. It also for the next period continues to absorb nebula forms with clearer spiral galaxy provides conditions. Thus we can speculate: in spiral galaxy, star family II, globular cluster, halo star family III and remains largely tend to globular distribution. And star family I and slewing of residual nebula, tend to be in a line along the radial distribution.

To radial internal and external stars spin motion along the rotary arm of stars, stars debris, residual nebula along the spiral arm in a circular cross section radius R_2 range is tend to and density distribution of ρ_0 . A star around the galactic nucleus in the spin motion orbit radius R_1 range total quality can approximate expressed as:

$\sum M = 2R_1 \pi R_2^2 \rho_0$, by the virial theorem:

$$\frac{2R_1 \pi R_2^2 \rho_0 G M_{\odot}}{R_1^2} = \frac{M_{\odot} v_{\theta}^2}{R_1}$$

$$v_{\theta} = \sqrt{2\pi R_2^2 \rho_0 G} \quad (26.2)$$

(R_2 for radial cross section radius of a circle)

By (26.2) type, : as long as rotary arm $R_2^2 \rho_0$ for constant, the rotary arm stars spin velocity v_{θ} is

constant, and distance galaxy nuclear size has nothing to do, this is shown in figure 26.2 is poor movement characteristics.

As for barred galaxy and ordinary spiral galaxy, the relationship between the two series: the author thinks that is one thing, and the difference is only spiral galaxy evolution different stages to get new nebula supplements. If the spiral galaxy, early get new nebula complement, then slewing is loose, a new round of the galaxy evolution can be more fully inherited the original galaxy appearance; If spiral galaxy to medium, old age to get new nebula complement, because the original galaxy's spiral arm has been tightening, internal spin speed is bigger, peripheral new nebula total angular momentum is lesser, lead to internal and external rotation speed difference bigger, naturally formed barred galaxy.

26.4 gravitational fields in the cosmic evolution in the leading role

26.4.1 Different gravitational field strength which is dominated by celestial existence type

According to various objects form the strength of the gravitational field, from big to small into the type?

1. Cluster → 2. Galaxy galaxy → 3. Galaxy galaxy nuclear → 4. The core of a galaxy, the central black hole → 5. Stars → 6. Quality and star quite black holes → 7. The remains of the neutron star and dwarf stars → 8. Planet → 9. Meteorites → 10. clouds.

Modern astronomy observations have shown that: if the cluster for the unit in the whole universe, in all directions of the density distribution is very uniform. We each cluster including peripheral two clusters half the distance between surrounded huge ball spaces, as Newton's universal gravitation field of quality unit. This can be concluded that the cluster surrounded the entire surface of the great ball space, in the infinite, eternal the whole universe in all directions of the gravitational field function, its overall force is 0, (assuming the cluster and the cluster around does not exist between gravity field around each other sports). This can also be further inference: in this huge spherical surface spaces every limited area unit, even infinitesimal area unit, this cluster and outside cluster, and even the entire universe of gravitational field between the role of resultant force is zero. As for cluster each other between winding motion, granted to each cluster quality, size, density distribution of local caused by uneven.

Similarly, in each cluster internal, for each galaxy, including all become dark matter has died of the galaxy. If we to each galaxy including peripheral two galaxies half the distance between to surrounded ball space, as Newton's universal gravitation field of quality unit. The same can be concluded that the galaxy surrounded the entire surface of the spherical space, in the whole cluster in all directions of the gravitational field function, its overall force must be tending to zero. The different is, galaxy the each other between winding motion, each galaxy clusters around the center of the overall quality of the relative movement and the obvious just.

From the above can corollary: local gravitational field strength determines the cluster of total quality size, type, distribution and the distance between each cluster. By (24.11) and (25.3) that the type, the cluster in all the core of a galaxy, the central black hole, and its quality is the core of a galaxy, two of the central black hole conflict completely big bang form large group nebula quality 1.2247448714 times. So, each cluster of the gravitational field of the overall strength and the center of the gravitational field is as cluster within the galaxy evolution in a constantly changing. This will inevitably lead to cluster the total quality size, type, distribution and the distance between each cluster with the constant change. Of course, the each other between adjacent clusters around movement also must be in constant change. Even on the surrounding neutrino field gravitation effect, also can appear change. As the earth's atmosphere air local flow, the whole universe space of neutrino field are not absolutely still remains the same, we are hard to find, sleep is far less than the speed of light sport.

To galaxy, galactic nucleus and galactic nucleus in the middle of the huge black hole, the author in chapter 24 ~ 26 already was systematically discussed. Here is only that the 2 features please reader's attention:

1. The galaxy is in its own gravitational field, under the action of one stage attract along the orbital motion into nebula material to gradually grow up. So, galaxy original gravitational field strength and to determine the moment of momentum can absorb nebula share, which determines the quality of the galaxy size and type.

2. According to the size of the galaxy and galaxy nuclear development degree, section 25.3 25.3.3 section is the core of a galaxy, the evolution of the morning and evening order: 1. Cluster → 2. Galaxy galaxy → 3. Galaxy galaxy nuclear → 4. The core of a galaxy, the central black hole → 5. Stars → 6. Quality and star quite black holes → 7. The remains of the neutron star and dwarf stars. The (flash partial body) on the periphery of the lack of nebula and dust. N galaxy and quasar has a star shape light nuclear, some quasars in infrared and optical band to heat the continuous spectrum is given priority to. Thus we can speculate: N galaxy should be small galaxy of the embryo, the middle of the bright nucleus may be a super star, the center will not rule out a globular

cluster level of a black hole. Part of the quasars in infrared and optical band to heat the continuous spectrum is given priority to, the surface that there are still star shaped thermonuclear reactions. The edge of the black hole existing star shaped thermonuclear reaction showed that, from the black hole accretion disk radiation photon formation of light pressure, is enough to hold and hold edge nebula ball shell, and can resist internal black holes and the entire nebula ball shell powerful gravitation, inside and outside the top pressure two force on the top, under the action of the nebula spherical shell lining to happen thermonuclear fusion reaction. This new speculative astronomical phenomenon, can explain part quasars in infrared and optical band to heat the continuous spectrum based super, super strength of star shape thermonuclear reaction (see chapter 27). As the shell in the nebula thermonuclear reaction, by the central black hole accretion, peripheral a large number of stars explosive terrain paired nebula split adsorption. Make the ball in the shell of the nebula gradually dilute, finally and peripheral stars together nebula - star mixed ball shell. So far, the black hole surface thermonuclear reaction natural stopped.

Different quality of stars in the gravitational field under the action of formation from →the nebula, thermonuclear reaction →nuclear fuel most run out of death into black holes, neutron stars, dwarf the entire process, the scientific community that has done detailed research. Here only repeat 1: star quality, thermonuclear reaction speed, life and death remains of the type, still by the strength of the gravitational field decision.

Planets and meteorites clouds, most in spiral galaxy's spiral arms, basically and star company was born. It is a generation of stars thermonuclear fusion reaction before death after explosion, astral surface shot out of the fusion reaction after the residue. Its composition is mainly for the nuclear charge number $Z_{ie} > 2$ atoms, shot after cooling solidification often into various sulfide, silicate and rich in carbon, nitrogen and mineral elements of meteorites.

The star surface explosion, the meteorite quality, inertia far outweigh the gas, so meteorite shot distance must be higher than gas state of the nebula distribution of a much wider range. If you include the whirlpool galaxy globular cluster center early large and superlarge stars exploded projectile meteorites clouds, to be sure, meteorites can spherical and widely distributed throughout the galaxy and peripheral halo in the. For spiral galaxy, for radial and disk has many spherical gravitational field long-term effects, meteorites cloud will eventually tend to be along the area distribution. This is the late disk family star formation provides rich material sources of the planet. It can be speculated that: most of the disk family stars may be accompanying the planet. Obviously, the death star before the explosion, meteorites cloud migration, disk family star formation, accompanying the whole process of planet, and gravitational field still plays a leading role.

In 26.1.1 ~ 3 sections, has been to the formation of the nebula, dark matter by other celestial bodies, galaxy and adsorption process makes a detailed discussion. Readers it is not overly difficult to see: only by radio and black hole conflict completely big bang severe inflation, mainly for the formation of hydrogen, helium elements thin single nebula, if no other celestial bodies, dark matter galaxy gravitational field more adsorption, it is very difficult to rely on their own are gas molecular uniform state, from their own weak gravitational field from the mass of nebula division contraction form new galaxy and spherical.

26.4.2 High-speed motion object state of being

On the earth, we can observe meteorites movement speed of general per second to hundreds of kilometers. The figure 26.2 shows that seven spiral galaxy's spiral arm rotation speeds are 150 ~ 350 km/s. The figure 25.2 and figure 26.2 shows, active galactic nuclei peripheral annular dust clouds spin speed, outer ring 500 ~ 1000 Km/s, inner ring 1000 ~ 3000 Km/s. Active galactic nuclei the edge of the accretion disk spin speed, (chapter 25 has been discussed, accretion disk from outside to inside, along with the spin velocity increases, the material from molecular and atomic state gradually transition to being torn shown in figure 1.2 the fluctuation, spin and precession orbit combination of particle spiral ring orbital motion state, finally and neutron material ring height can particle spiral ring track speed. From outside to inside is:

$$500 \text{ Km/s} \rightarrow 1000 \text{ Km/s} \rightarrow 3000 \text{ Km/s} \rightarrow \frac{c}{\sqrt{3}}$$

As for the galaxy and cluster of relative motion between, the virial law and spectral Doppler frequency shift difference (deducting the neutrino field of spectral energy absorption produce red shift) prediction, the movement speed in hundreds of kilometers per second range.

Table 6.1, table 6.2, and calculates the protons, neutrons π^\pm meson spin orbit quantum number $N_\alpha = 22/9$; Table 9.3 determined within the nucleus height low-energy particle spiral ring of discretion can π^\pm meson spin orbit quantum number $N_{\alpha i}$; By (1.5) type, figure 1.2 certain particle spin and precession speed for:

$$v_\theta = v_j = \frac{v_\alpha}{\sqrt{N_\alpha}} = \frac{\beta c}{\sqrt{N_\alpha}} \approx \frac{c}{\sqrt{N_\alpha}}$$

According to chapter 16 hydrogen, helium and lithium atom surface electron orbit calculation parameters, we find out the three atoms along the surface electron spin orbital motion of the average velocity $v_{\theta i}$ respectively is: 2187.7 Km/s, 3828.5 Km/s, 143.8 Km/s.

According to chapter 20 table 20.2 ~ to table 20.5, ${}_{100}Fm$, ${}_{80}Hg$, ${}_{60}Nd$ and ${}_{40}Zr$ four atomic internal K layer electronic spin orbit quantum number $N_{\alpha i}$ calculation results, $N_{\alpha i}$ value is between 3.2 and 18.3, by (1.5) type can be inferred, K layer electronic spin speed $v_{\theta i} = 167589 .1 \sim 70080 .2 Km / s$.

All kinds of particle spin, precession speed calculation results see table 26.4.

Particle type	Spin quantum number $N_{\alpha i}$		Spin or precession speed Units (Km/s)	
	Proton	22/9		191747.9
Neutron	22/9		191747.9	
Conditions within the nucleus	$N_{\alpha di}$	$N_{\alpha gi}$	low-energy π^\pm ,	High energy π^\pm
First layer	34/13	34/13	185375.7	185375.7
Layer 2	16	50	74948.1	42397.1
Layer 3	34	114	51414.0	28078.1
Tier 4	58	203	39364.7	21041.3
Fifth layer	88	316	31958.0	16864.6

A combination of the astronomical observation data and particle, electrons within the atoms spin speed parameters, it can be deduced: this section beginning list of ten kinds of molecules, atoms or by the aggregation of objects, the overall total kinetic rate generally in hundreds of kilometers per second range. As the earth's equator surface rotation speed of about 464 m/s, revolves around the sun in spin speed is about 29.8 Km/s, the solar system is located in the Milky Way in the arms, the silver heart around the rotation speed of about 300 Km/s. The molecules, atoms or its aggregate composition bodies and meteorites, in great quality, black hole edge will be evaporation, cracking or ionization, form shown in figure 25.2 gas clouds of dust or ionization cloud.

When the particle's spin or precession speed gradually increase $v_\theta = v_j = 3000 \sim 10000 Km / s \rightarrow c / \sqrt{3}$, the black hole edge of the annular gas dust and accretion disk medial particle spiral ring motion track, the last will and neutron material ring height can particle spiral ring track speed. Heavy nucleus is internal, 5 layers of low-energy particle spiral ring spin speed will also from 31958.0 Km/s $\rightarrow c / \sqrt{3}$, the first layer particle spiral ring spin orbit and axle. So, the future spacecraft as molecules, atoms aggregation, when it travels thousands of kilometers to nearly the speed of light c flight, what is the disintegration of the critical speed? I'm afraid or a large group of unknown!

26.4.3 Gravitational field in the cosmic evolution in the leading role

From the beginning of this section lists ten kinds of celestial bodies, 8. Planet \rightarrow 9. Meteorites clouds \rightarrow nebula is the most weak gravitational field strength and the amount of matter at least 3 class objects. In these objects to atomic surface electronic electromagnetic force interaction is given priority to, can form various compounds or the structure is quite complicate organism. Gravitational field only determine their condensation degree and overall movement track.

5. Stars → 6. Quality and star quite black holes → 7. Stellar debris neutron star, dwarf that three kinds of celestial gravitational field strength medium. This book has been proved: the conditions within the nucleus, neutron stars and black holes inside the strength of the interaction force is the force, also is the electromagnetic force. The electromagnetic force is slightly less than or equal to the universal gravitation, which determines the stars internal thermonuclear reaction speed, strength and the type of stellar debris.

3. The core of a galaxy → 4. The core of a galaxy, the central black hole, if local space they are when the gravitational field strength biggest 2 class objects. Here because the gravitational field strength far outweigh the electromagnetic force, forcing the interior of a black hole into hollow neutron material ring structure, make universal gravitation and electromagnetic force finally realize the complete balance equal big unification, and become all objects of the nebula of samsara, the area.

1. Cluster → 2. Galaxy, can saying is the basic unit of the celestial bodies. Front have argument: cluster size, type, overall density, all by gravitational field strength decided. Similarly, the galaxy's size, type, life, overall density, also all by gravitational field strength decided.

To sum up, the universe by all the heavenly body is composed, all of the celestial being determines the gravitation field strength, the strength of the gravitational field and determine the object of the type, composition, movement and evolution, therefore, gravitational field in the infinite, eternal universe model evolution is worthy of the name "God".

27 quasar spectral supernormal value red shift of the gravitational field formation mechanism

27.1. Quasar spectral supernormal value

Red shift principle

27.1.1. Quasar spectral supernormal value red shift paradox

Chapter 25 galaxy nuclear early characteristics and energy conversion, radiation, this paper discusses the mechanism of already know: N galaxy center and quasar has a star shape light nuclear, or less in 0.2pc in the tiny space, a quasar total luminosity is equivalent to $10^3 \sim 10^4$ ordinary galaxy's total luminosity. Quite a number of quasars have spectrum supernormal value red shift phenomenon. Individual spectrum red shift of Z value have up to 3 ~ 5! The theory of relativity by spectral Doppler frequency shift effect

$$\frac{v}{c} = \frac{Z^2 - 1}{1 + Z^2} = \frac{4}{5} \sim \frac{12}{13} \geq \frac{1}{\sqrt{3}}$$

It is hard to imagine, to $v \geq 0.8c$ speed movement of the celestial black hole accretion disks, than the edge of the neutron material ring limit rotation movement speed is fast. The object is to molecules, atoms aggregation state exist? If the (22.10) type Hubble's cosmic expansion model to calculate the distance of quasars, hypothesis $H_0=75$, the R = (3 ~ 5) x 14.8 billion light-years in! It also made the universe hot big bang form theorists can't end. It is no wonder that many astronomical scholars to the quasar spectra supernormal value red shift repeatedly doubt whether it is truly cosmology sex.

27.1.2. Quasars stars form bright nucleus and spectral supernormal value red shift form physical model

The section 26.4 gravitational field has analysed to 1. N galaxy. → 2. BL, Lac (flash partial celestial) → 3. The quasar gravity, we speculated that N galaxy and quasars core exist a fairly massive black holes. N galaxy should be small galaxy of the embryo, the middle of the bright nucleus may be a very large hollow ball shell of stars, the center will not rule out a globular cluster level of a black hole. These quasars in infrared and optical band to heat the continuous spectrum are given priority to, the surface that there are still star shaped thermonuclear reactions. By (25.8) type, it is known that the edge of the black hole existing star shaped thermonuclear reaction showed that, from the black hole accretion disk by the effect of gravitational field radiation that the total energy of the photon, equivalent to star thermonuclear fusion reactions release total energy twenty times! It shows that: the accretion disk radiation formation of light pressure, is enough to hold and hold edge nebula ball shell, and can resist internal black holes and the entire nebula ball shell powerful gravitation, inside and outside the top pressure two forces on the top, under the action of the nebula spherical shell lining to happened thermonuclear reaction. This new speculate stars fusion model that can explain part quasars in infrared and optical band formation to heat the continuous spectrum based super, super strength of star shape thermonuclear reaction, and can explain part the quasar supernormal value red shift. It is to break the gravitational potential energy must pay the price, see figure 27.1. At the same time, also to Einstein's theory of relativity put forward severe question time and space.

27.1.3. The interior of a black hole neutron material ring structure model

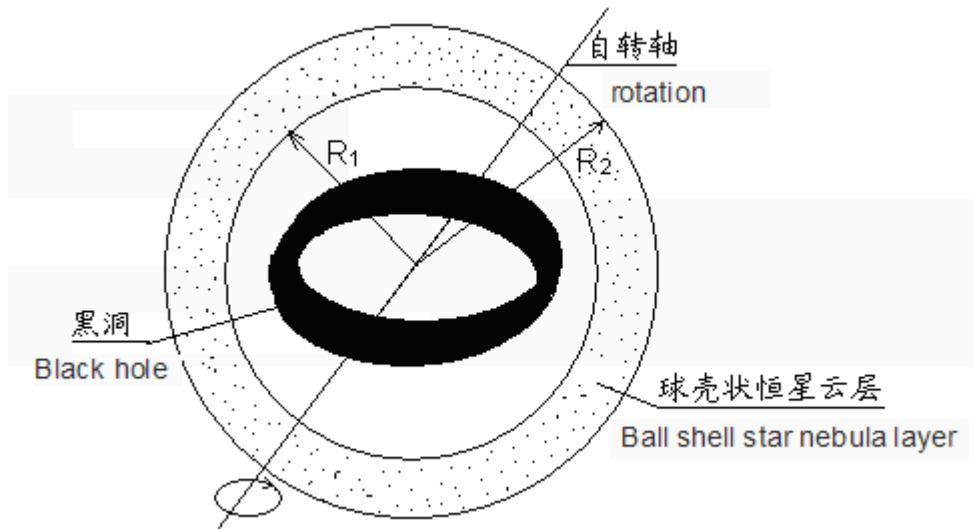


Figure 27.1 quasars internal neutron material ring And ball shell star cloud structure model

Take the $R_{1,i} = 7112.39$ m great value is constant. A black hole from center to outside the reason N a neutron material of ring. Make $R_{1,i} = R_{2,0}$, $v_{\theta} = \frac{c}{\sqrt{3}}$ is constant. The black hole in the neutron material ring aggregate total quality as $\sum M_i$. By Newton's law of universal gravitation and the virial theorem, the black hole is the most outer neutron material on the ring as a segment neutron aggregate dM_i , we have:

$$\frac{G \sum M_i \cdot dM_i}{R_{1,i}^2} = \frac{dM_i \cdot v_{\theta}^2}{R_{1,i}}, \text{ Simplified to:}$$

$$\frac{G \sum M_i}{R_{1,i}} = v_{\theta}^2 \tag{27.1}$$

Because each a neutron material ring quality M_i for: $M_i = 2\pi R_{1,i} \cdot \pi R_{2,0}^2 \rho_{0n}$, so:

$$\sum M_i = 2\pi^2 R_{2,0}^2 \rho_{0n} (R_{1,1} + R_{1,2} + \dots + R_{1,i}). \text{ Substituting (27.1) type to:}$$

$$\frac{2\pi^2 G R_{2,0}^2 \rho_{0n} (R_{1,1} + R_{1,2} + \dots + R_{1,i})}{R_{1,i}} = v_{\theta}^2 \tag{27.2}$$

Will $R_{2,0} = 7112.39$ m, $v_{\theta} = \frac{c}{\sqrt{3}}$, $\rho_0 = 1.9984 \times 10^{17} \text{ Kg/m}^3$, substituting (24.10) type:

$$\rho_{0n} = \frac{\rho_0}{(1 - K_v^2)^2} = 4.4964 \times 10^{17} \text{ Kg/m}^3. \text{ Will these values are substitution (27.2) type to:}$$

$$\frac{R_{1,1} + R_{1,2} + \dots + R_{1,i}}{R_{1,i}} = 1 \tag{27.3}$$

The type results show that: all the black hole, no matter size, internal quality of neutron material ring can steadily there is a lower limit, the quality is $1.6055 M_{\odot}$. And, with the increase of the black hole quality, the spin radius $R_{1,i}$ will directly proportional increase. The back, we will directly with M_{\bullet} symbol quasars center the mass of a black hole.

27.2. Quasars internal structure model and the relevant parameters of the simulation

27.2.1. Quasars internal structure model and the relevant parameters collection

In the light of the stars internal fusion energy conversion process study, what we already know: light between nuclear fusion reaction must overcome coulomb field repulsive force of the barrier, so, nuclear energy, also is the plasma temperature T_c will play the leading role. To pressure P_c and density ρ_c reaction are not sensitive. According to the scientific community to long-term research in magnetic field constraint controlled thermonuclear fusion reaction, mainly based on ultra high temperature, low pressure and density conditions. So, to figure 27.1 shows the outer shell of the black hole ball star cloud fusion physical conditions, as long as we take the sun center temperature $T_c = 1.5 \times 10^7 k$, the average density of $\bar{\rho}_\ominus = 1.4084 \times 10^3 Kg/m^3$ and appropriate pressure parameters is enough.

At present the scientific community about the black hole edge accretion disk on the release of a large number of photon energy, their ball shell star cloud bottom support pressure, heating and thermal convection of the back pressure effect, is still not clear. But you can speculate that the hole edge ball shell star clouds, from the black hole edge accretion disk on the release of a large number of photon energy, at the bottom of the nebula heating and thermal convection of the pressure gradient is bigger, the nebula density change smaller. We can use Newton mechanics gravitational field to the top of the ball shell star clouds solving gravitational potential energy.

27.2.2. Quasars stars form bright nucleus and spectral supernormal value red shift simulation results

The figure 27.1 shows, a quasar the central black hole quality for $M_{\bullet 1}$, and peripheral ball shell star cloud overall quality of M_2 ball shell star cloud surface photon m_r of the gravitational field potential for ΔW_r . From the front of the particle physics in figure 2.4 we already know, photon and neutrino fluctuations, precession orbit is circular helix, fluctuation and precession speed is the speed of light, along the track of the resultant velocity for $\sqrt{2}c$; So, by quantum mechanics, each photon actual kinetic energy should be expressed as $W_r = m_r c^2$, rather than Newtonian mechanics that $W_r = 0.5 m_r c^2$. So, the calculation of photon and gravitational field of neutrinos gravitational potential energy or force, gravitational constant G remain unchanged, but the photon energy should instead be $W_r = m_r c^2$. (see section 28.2 further analysis of the derivation and verify the calculation results.

Make $R_{\bullet 1} = C_1 R_{2,0}$, $M_{\bullet 1} = 1.6055 C_1 M_\odot$, $R_1 = C_1 C_2 R_{2,0}$, $C_3 = \frac{R_1}{R_2}$, $R_2 = \frac{C_1 C_2 R_{2,0}}{C_3}$, average density $\bar{\rho}_\ominus = 1.4084 \times 10^3 Kg/m^3$. ($C_1 \geq 1$ $C_2 \geq 1$ $0 < C_3 \leq 1$) . We have:

$$\Delta W_r = \frac{2G \left[M_{\bullet 1} + \frac{4}{3} \pi \bar{\rho}_\ominus (R_2^3 - R_1^3) \right] m_r}{R_2}$$

The above hypothesis factor substitution (27.4) type, have to:

$$\Delta W_r = 2G \frac{\left[1.6055 C_1 M_\odot + \frac{4}{3} \pi \bar{\rho}_\ominus (C_1 C_2 R_{2,0})^3 \left(\frac{1 - C_3^3}{C_3^3} \right) \right] m_r C_3}{C_1 C_2 R_{2,0}} \tag{27.4}$$

By quantum mechanics, the law of conservation of energy and (27.4) type, photon in the gravitational field under the action of the spectrum gravitational red shift value $\sum K_z$ can be expressed as:

$$\begin{aligned} \sum K_z &= \frac{m_r c^2}{m_r c^2 - \Delta W_r} - 1 \\ &= \frac{\Delta W_r}{c^2 - \Delta W_r} \end{aligned} \tag{27.5}$$

By (27.5) type that can be seen: when $\Delta W_r \rightarrow c^2$, the spectrum gravitational red shift value $\sum K_z \rightarrow \pm \infty$ will have infinite value.

Make the ball shell star cloud thickness of ΔR_{1-2} from the above C_1 and C_2 and C_3 set:

$$\Delta R_{1-2} = \frac{R_1}{C_3} - R_1 = C_1 C_2 R_{2,0} \left(\frac{1}{C_3} - 1 \right) \tag{27.6}$$

Make the ball shell star cloud total quality as the M_2 , is the mass of the sun M_\odot of C_m times, we have:

$$C_m = \frac{4}{3} \pi \bar{\rho}_\Theta \frac{(R_2^3 - R_1^3)}{M_\Theta} = \frac{4}{3} \pi \bar{\rho}_\Theta (C_1 C_2 R_{2,0})^3 \left(\frac{1 - C_3^3}{C_3^3 M_\Theta} \right) \tag{27.7}$$

Make the ball shell star cloud bottom pressure P_c support by the central black hole accretion disk release of photon momentum impulse to provide, the accretion disk per second need radiation photon total quality Δm_r , by Newtonian mechanics and quantum mechanics have to:

$$\Delta m_r = 4\pi R_1^2 \frac{P_c}{c} = 4\pi (C_1 C_2 R_{2,0})^2 \frac{P_c}{c} \tag{27.8}$$

Make the central black hole every accretion rate is $\sum \Delta m_r$, is the mass of the sun M_\odot times of $C_{m\odot}$. By (27.8) type, the central black hole from accretion disk release of photon total energy is accretion amount of 14.226%, therefore, by (27.8) type, total accretion rate $\sum \Delta m_r$ is equivalent to the mass of the sun M_\odot multiples of $C_{m\odot}$ for:

$$C_{m\odot} = \frac{\sum \Delta m_r}{M_\Theta} = \frac{\Delta m_r \times 3600 \times 24 \times 365}{0.14226 M_\Theta} \tag{27.9}$$

The quasar light change time scale, the figure 27.1, it can see with neutron pulsar as emission mechanism. The interior of a black hole neutron material ring and edge of accretion disks produce strong electromagnetic fields, will decide quasars inside and outside of the spectrum polarization direction. By (24.11) type for the interior of a black hole neutron material ring spin speed $v = \frac{c}{\sqrt{3}}$, timing days T can be expressed as:

$$T = \frac{(2\pi C_1 R_{2,0}) \sqrt{3}}{3600 \times 24 c} \tag{27.10}$$

To sum up, the internal structure of quasars each parameter simulation program is as follows:

By (27.4) ~ (27.10) type, we make sure $C_2=2$, $C_3=0.5$, $\bar{\rho}_\Theta=1.4084 \times 10^3 \text{ Kg/m}^3$, $P_c = 10^6 \text{ (N/m}^2\text{)}$, belong to the reasonable value range. Then the default C_1 value for a reasonable determine constant, respectively substitution (27.4) ~ (27.10) type, simulation calculated quasars internal structure, parameters and spectrum red shift equivalent see table 27.1.

Quasars internal structure, parameters and spectrum red shift equivalent simulation results table 27.1

C_1	ΔW_r (J)	$\sum K_z$	ΔR_{1-2} (m)	C_m (M_\odot)	$C_{m\odot}$ (M_\odot)	T(day 天)
10^8	5.5907×10^1 ₈	-1.0163	1.422×10^1 ₂	5.976×10^{10}	9.4530	0.298
5×10^7	1.4089×10^1 ₈	-1.0681	7.112×10^1 ₁	7.470×10^9	2.363	0.149
2×10^7	2.3801×10^1	-1.6067	2.845×10^1	4.781×10^8	0.3781	0.060

	7		1			
1.5×10^7	1.4043×10^1 ₇	-2.7777	2.134×10^1 ₁	2.017×10^8	0.2127	0.045
1.2×10^7	9.5269×10^1 ₆	-17.6630	1.707×10^1 ₁	1.033×10^8	0.1361	0.036
1.1×10^7	8.2445×10^1 ₆	11.0957	1.565×10^1 ₁	7.954×10^7	0.1144	0.033
1.05×10^7	7.6451×10^1 ₆	5.6950	1.494×10^1 ₁	6.918×10^7	0.1042	0.031
1.025×10^7	7.3559×10^1 ₆	4.5082	1.458×10^1 ₁	6.436×10^7	0.0993	0.031
1.01×10^7	7.1857×10^1 ₆	3.9879	1.437×10^1 ₁	6.157×10^7	0.0964	0.030
10^7	7.0736×10^1 ₆	3.6959	1.422×10^1 ₁	5.976×10^7	0.0945	0.030
5×10^6	2.8919×10^1 ₆	0.4744	7.112×10^1 ₀	7.470×10^6	0.0236	0.015
10^6	1.5537×10^1 ₆	0.2090	1.422×10^1 ₀	5.976×10^4	0.0009	0.003
5×10^5	1.5119×10^1 ₆	0.2022	7.112×10^9	7470.07	2.4×10^{-4}	1.49×10^{-3}
10^4	1.4979×10^1 ₆	0.2000	1.422×10^8	5.976×10^{-2}	9.5×10^{-5}	2.99×10^{-5}
10^3	1.4979×10^1 ₆	0.2000	1.422×10^7	5.976×10^{-5}	9.5×10^{-10}	2.99×10^{-6}

Table 27.1 the results can be seen: in $C_1 = 1.2 \times 10^7 \sim 1.1 \times 10^7$ of the interval of a certain value, the spectrum gravitational red shift value $\sum K_z \rightarrow \pm \infty$ will have infinite value. The $\sum K_z$ is negative in the whole quasars schwarzschild black holes within the radius. (Does not exist completely black holes, even if gravitational field's largest neutron material ring surface, there are from accretion disks not so hot in the continuous spectrum emission). When $C_1 > 5 \times 10^5$, ball shell star cloud total quality $M_2 > 5.976 \times 10^7 M_\odot$ these quasars should belong to the galaxy nuclear embryos.

When $C_1 < 5 \times 10^5$, we can greatly improve the values of C_2 , such as make $C_2 = 10^5$, other parameters constant, simulation results see table 27.2.

Quasars internal structure, parameters and spectrum red shift equivalent simulation results table 27.2

C_1	ΔW_r (J)	$\sum K_z$	ΔR_{1-2} (m)	C_m (M_\odot)	$C_{m\odot}$ (M_\odot)	T(天)
10^5	1.3939×10^{22}	-1.0000	7.112×10^{13}	7.470×10^{15}	23632.5	2.99×10^{-4}
5×10^4	3.4848×10^{21}	-1.0000	3.556×10^{13}	9.338×10^{14}	5908.12	1.49×10^{-4}
10^4	1.3939×10^{20}	-1.0006	7.112×10^{12}	7.470×10^{12}	236.325	2.99×10^{-5}
5×10^3	3.4848×10^{19}	-1.0026	3.556×10^{12}	9.338×10^{11}	59.0812	1.49×10^{-5}
10^3	1.3939×10^{18}	-1.0689	7.112×10^{11}	7.470×10^9	2.36324	2.99×10^{-6}
500	3.4848×10^{17}	-1.3475	3.556×10^{11}	9.338×10^8	0.59081	1.49×10^{-6}
260	9.4229×10^{16}	-21.642	1.849×10^{11}	1.313×10^8	0.15976	7.77×10^{-7}

250	8.7120×10^{16}	31.6210	1.778×10^{11}	1.167×10^8	0.14770	7.47×10^{-7}
200	5.5757×10^{16}	1.63422	1.422×10^{11}	5.976×10^7	0.09453	5.98×10^{-7}
100	1.3940×10^{16}	0.18357	7.112×10^{10}	7.470×10^6	0.02363	2.99×10^{-7}
10	1.3969×10^{14}	1.557×10^{-3}	7.112×10^9	7470.07	2.36×10^{-4}	2.99×10^{-8}
1	1.6935×10^{14}	1.884×10^{-5}	7.112×10^8	7.47007	2.36×10^{-6}	2.99×10^{-9}

Table 27.2 the results that: when $C_1 < 250$ range, there are also great spectrum red shift value. When $C_1 < 200$, within the scope of the ball shell star cloud total quality $M_2 < 5.976 \times 10^7 M_\odot$ it is equivalent to the dwarf nuclear embryonic little quasars or globular cluster center early formation supermassive stars.

A combination of the simulation show that quasars supernormal value spectrum red shift is the central black hole gravitation place to; Can't use the hot big bang expansion Hubble's law is to distance; More can't use Einstein's theory of relativity time and space of the Doppler frequency shift law to inference quasars away from our movement speed tends to the speed of light; Even in superluminal movement speed far from us.

As for the quasar unimaginable so-called super energy radiation problem, when we in their actual distance analysis, then consider the central black hole accretion disk to accretion content up to twenty times the energy release of the light fusion, natural all problems lead edge and the solution.

In the universe, common two stars close mutual winding motion form the light of the periodic change phenomenon. Table 27.1 and table 27.2 simulation quasar light change cycle is obvious small. To this, we might as well to speculate that quasars as galactic nucleus of the embryo, the scale although far outweigh the stars, but it sure is far less than the quality of secondary normal galactic nucleus; With our relative distances, and two stars quasars close around each other sports can also form the light of the periodic change phenomenon.

28. Newton and Einstein's absolute time-space relative concept of space-time relationship

28.1 Einstein's relative the birth of space-time physics history background

28.1.1 Einstein's relative the birth of space-time physics history background

What are the light particles or wave? To Newton as a representative of school think just particles, and his contemporary Dutch physicist cost more, (1629-1695), and other scholars believe that light is a wave. Two school debate competition for 100 years. Until 1801, the British doctor and physicists Young (1733-1829) completed the interference of light experiment, just make physical scholars tend to believe that light is a wave.

In 1842, Doppler was first put forward: the movement of light source may affect the position of the line. In 1868, Huggins in far away from the earth stars emits spectral line the first observed spectral Doppler redshift phenomenon. Later, the use of the earth's motion light source experiment also confirmed this phenomenon.

In 1864, maxwell electromagnetic field equations is derived, and predicted the existence of electromagnetic wave, and calculates the electromagnetic wave propagation speed is equal to the speed of light, asserting that the same properties, the light is very short wavelength of electromagnetic waves.

Until 1888 Hz with the experiment confirmed the presence of electromagnetic wave, maxwell electromagnetic fields equations to be physical scholars admit. In 1879, the United States physicists Michelson accurately measure the speed of light in a vacuum $c = 299796 \text{ km/s}$.

1887 Michelson - Morey with optical interference method (see figure 5.4) experimental proof: can not be measured relative to the earth "ether" movement speed.

At the turn of the century New Year message, a famous British physicist Lord kelvin (1824-1907) restlessly mentioned in the calm and clear physics is in the sky there is the two a dark clouds: a and blackbody radiation experiments, a and "the etheric" drift experiments.

On December 14, 1900 in Germany at the Max Planck physics report their research results. He assumed black body is made of many tiny energy oscillator components, each a vibrator energy is a basic energy h integer times. Thus derived blackbody radiation formula and experimental results perfectly, a dark cloud be dispelled, quantum physics was born.

From the above data shows that: when the physical understanding of the academic circles light is a superficial, only know that light is very short wavelength of electromagnetic waves, and electromagnetic wave that is shear wave, can only in the solid medium propagation; "The etheric" if not solid, whether there is already doesn't matter; Vacuum of the speed of light is constant; As for the light source the movement of the Doppler frequency shift, did not give enough attention; What is the light particles or wave? Still is not final conclusion.

In 1905, Einstein from Planck blackbody radiation to explain the basic idea of the quantum energy is inspired, in the photoelectric effect study established the light wave particle duality; In the lorentz transformation formula based on to the special theory of relativity; In 1916 and completed the general theory of relativity. (Please note: theory of relativity prerequisite is the speed of light invariance, namely between the observer and the source if there is speed $v < c$ relative motion, the speed of light is still the same.

28.1.2 Nearly 100 years in the research field of the related physics major new find

At the field of astronomy observation, since 1912, the weasley eph found that distant galaxy light emitted from earth relative is close to the light of stars, like the sound source, can happen Doppler frequency shift, there are red shift phenomenon. In 1929, the Hubble found that the red shift to follow a very simple rule: galaxy the farther the distance, the greater the red shift and red shift and is proportional to the distance.

In 1924 Hubble confirmed the presence of the outer rim river, and then measure the distance spread to hundreds of millions of ~ the last years.

In 1965, the United States telecom engineer PengJi and Wilson: in the microwave communication, accidentally found 2.73 K cosmic background blackbody microwave radiation.

In the field of particle physics, in December 1930, in Germany diagram bingen physics at the meeting, BaoLi prophecy: nuclear beta decay process of energy loss is caused by the neutrino. Until 1956, ke lai mild to exchange with the experiment confirmed the presence of electron neutrino and then been found μ muon type, τ sub-type neutrino and its antiparticle.

1980 years later, some scientists found space in the neutrino oscillation phenomena existing energy.

**28.2. Gravitational field to light bending effect
Of Newtonian mechanics analysis**

The book (1.2) equations and Newton's mechanics, see chapter 15 electron atomic nucleus along the spin elliptic orbit motion equations derived process, see figure 28.1. Make the photon movement quality for m_r , as a particle along the fluctuation, precession helix orbital motion, the mass of the sun for M_\odot . By Newton's law of gravitation:

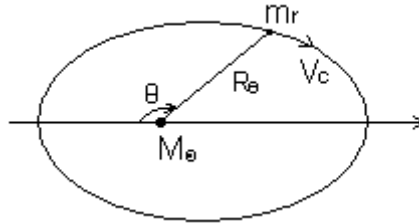


Figure 28.1 photon orbits round the sun precession

$$\left\{ \begin{aligned} R_\theta &= \frac{H}{m_r v_\theta} \quad \left(\frac{H}{m_r} = R_\theta v_\theta \right) & (28.1-1) \\ m_r (\ddot{R}_\theta - R_\theta \dot{\theta}^2) &= \frac{-GM_\odot m_r}{R_\theta^2} & (28.1-2) \\ m_r (R_\theta \ddot{\theta} + 2\dot{R}_\theta \dot{\theta}) &= 0 & (28.1-3) \end{aligned} \right.$$

And (15.1) equations comparison, (28.1-1) type to remove a spin quantum number N_θ . (28.1-2), (28.1-3) two type for learned Newtonian mechanics people all know, is the law of universal gravitation expression. (28.1-1) type is photon in the sun as the center of gravity field under the action of precession of the orbital motion of moment of momentum conservation formula. We in order to make the model intuitive and convenient analysis, first assumed cone surface cutting line for elliptic orbit. When the moment of momentum is constant, the photon by the sun's gravitational field force will be along the precession orbit radius to the center of the sun. The law of universal gravitation proof, (28.1-1) type of moment of momentum H is constant, so, (28.1-2), (28.1-3) type natural was established.

By (28.1-1) type, make the photon precession of the angular velocity $\dot{\theta}$ for:

$$\dot{\theta} = \frac{v_\theta}{R_\theta} = \frac{H}{m_r R_\theta^2} \tag{28.2}$$

Make $R_\theta = \frac{1}{u}$, the $dR_\theta = -\frac{du}{u^2}$, substituting (28.2), type to:

$$\dot{\theta} = \frac{H}{m_r} u^2 \tag{28.3}$$

The figure 28.1, (28.3) type, the photons radial velocity $v_r (\dot{R}_\theta)$ and acceleration $a_r (\ddot{R}_\theta)$ respectively is:

$$v_r = \frac{dR_\theta}{d\theta} \dot{\theta} = -\frac{H}{m_r} \frac{du}{d\theta} \tag{28.4}$$

$$\alpha_r = -\frac{H}{m_r} \frac{du^2}{d\theta^2} \dot{\theta} = -\left(\frac{H}{m_r} \right)^2 u^2 \frac{du^2}{d\theta^2} \tag{28.5}$$

Will (28.4) and (28.5) type substitution (28.1-2) type arrangement must:

$$\frac{du^2}{d\theta^2} + u = GM_{\odot} \left(\frac{m_r}{H} \right)^2 \tag{28.6}$$

Make $u = C_1 \cos \theta + C_2$, $\frac{du}{d\theta} = -C_1 \sin \theta$, $\frac{du^2}{d\theta^2} = -C_1 \cos \theta$ substituting (28.6) type, solution of differential equations (28.6) declined to:

$$R_{\theta} = \frac{\frac{1}{GM_{\odot}} \left(\frac{H}{m_r} \right)^2}{1 + C_1 \frac{1}{GM_{\odot}} \left(\frac{H}{m_r} \right)^2 \cos \theta} \tag{28.7}$$

Make $P = \frac{1}{GM_{\odot}} \left(\frac{H}{m_r} \right)^2$, $E_{\theta} = \frac{C_1}{GM_{\odot}} \left(\frac{H}{m_r} \right)^2$, (27.7) type expressed as:

$$R_{\theta} = \frac{P}{1 + E_{\theta} \cos \theta} \tag{28.8}$$

This is what we are familiar with conical surface cutting line track equation of motion.

The law of universal gravitation and the (28.8) type, we can see that: the photon energy $W_{\gamma m}$ will far outweigh the gravitational potential energy $W_{\gamma g}$, $W_{\gamma m} \gg W_{\gamma g}$, so, $E_{\theta} \gg 1$, the photons into dynamic track can be hyperbolic, see figure 28.2.

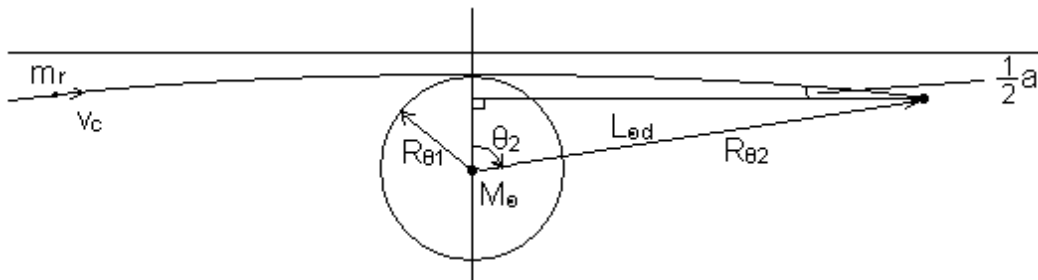


Figure 28.2 photon in the gravitational field under of the sun action of precession orbit is bending angle calculation diagram

By (28.1-1) and (28.2) and (28.7) type, make the photon along the precession direction, radius direction and orbit tangent velocity v_{θ} , v_r , v_c respectively is:

$$\begin{cases} v_r = GM_{\odot} \frac{m_r}{H} E_{\theta} \sin \theta & (28.9-1) \end{cases}$$

$$\begin{cases} v_{\theta} = GM_{\odot} \frac{m_r}{H} (1 + E_{\theta} \cos \theta) & (28.9-2) \end{cases}$$

$$\begin{cases} v_c = GM_{\odot} \frac{m_r}{H} \sqrt{1 + 2E_{\theta} \cos \theta + E_{\theta}^2} & (28.9-3) \end{cases}$$

Photon along the precession of the hyperbolic orbital motion of the kinetic energy W_{rm} , from (28.9) equations and Newtonian mechanics have to:

$$W_{rm} = \frac{m_r}{2} \left(GM_{\odot} \frac{m_r}{H} \right)^2 (1 + 2E_{\theta} \cos \theta + E_{\theta}^2) \tag{28.10}$$

Photon along the precession hyperbolic orbital motion, in the sun under the action of gravity of gravitational potential energy for $W_{\gamma g}$, by the law of universal gravitation (28.1-2) type:

$$W_{rg} = \frac{-GM_{\odot}m_r}{R_{\theta}} = -m_r \left(GM_{\odot} \frac{m_r}{H} \right)^2 (1 + E_{\theta} \cos\theta) \quad (28.11)$$

The photon in the sun under the action of the gravitational field of the total energy of the $\Delta W_{\gamma c}$, apparently for its kinetic energy and the sum of gravitational potential energy. By (28.10) and (28.11) type, have to:

$$\Delta W_{rc} = \frac{1}{2} m_r \left(GM_{\odot} \frac{m_r}{H} \right)^2 (E_{\theta}^2 - 1) \quad (28.12)$$

Below, we by Newton's law of gravitation to calculate photon as a common particle, from infinity through the surface of the sun, again shot to the surface of the earth, in the sun under the action of gravity field, photon precession orbit should bend Angle α value.

The astronomical observation data, the mass of the sun $M_{\odot} = 1.989 \times 10^{30}$ kg, radius $R_{\odot} = 6.9599 \times 10^8$ m, the sun and the earth's distance $L_{\odot d} = 1.496 \times 10^{11}$ m. Calculation model is shown in figure 28.2.

First, make the photon skim over the sun surface speed $v_{\theta} = v_c = c$, surface cutting position $\theta_1 = 0$, $R_{\theta_1} = 6.9599 \times 10^8$ m. The above data substitution (28.7) and (28.8) type to: $P = 3.28033488 \times 10^{14}$, $C_1 = 1.4366799204 \times 10^{-9}$, $E_{\theta} = 471318.2546$.

Make $R_{\theta_2} = L_{\odot d} = 1.496 \times 10^{11}$ m, the $P = 3.28033488 \times 10^{14}$, $E_{\theta} = 471318.2546$ value substitution (28.8) type: $\theta_2 = 89.73356061^{\circ}$. Photon precession orbit bending of $\Delta L_{\odot d}$, bending Angle α , the figure 28.2 can see simplified calculation equation for:

$$\Delta L_{\odot d} = R_{\theta_1} - L_{\odot d} \cos\theta_2 = 315930.9399 \text{ (m)} \quad (28.13)$$

$$\alpha = 2 \arctg \frac{\Delta L_{\odot d}}{L_{\odot d} \sin\theta_2} = 0.871205063 \text{ //} \quad (28.14)$$

In 1911, Einstein first calculates the light over the surface of the sun happen deflection Angle is 0.83 ", in 1915, he will be the corrections for 1.73 ". Later the British total eclipse observation team confirmed the prediction, which shot to fame.

So, α bending Angle value why are close to times? Why Einstein, a second time he made correct? The reason is that the particularity of the photon itself. The quantum physics and the theory of relativity, photon orbit is circular helix; the whole speed is $\sqrt{2}c$, energy $W_{rc} = m_r c^2$. The Newtonian mechanics, see (28.10) type, the

kinetic energy of the photon should be $W_{rc} = \frac{1}{2} m_r v_c^2$, both just by one time. Van and Newton mechanics

quality refers to the object and the photon rest mass, the fluctuation; precession speed is constant c , no static quality. From the front orbital theory of quantum physics system demonstration, we already know, relativistic speed movement of the charge, in the vertical direction of the electromagnetic field intensity produced shall be

divided by a theory of relativity factor $\sqrt{1 - \left(\frac{v}{c}\right)^2}$. And when $v \rightarrow c$, the electromagnetic field intensity will

tend to infinity. So, we direct to quantum physics and the theory of relativity, energy (27.4) type the derivation process of the Newtonian mechanics and the photon energy formula comparison must make the photon relative the sun's gravitational field strength of interaction between double, then can make the photons Newton kinetic energy doubled for $W_{rc} = m_r c^2$. Therefore, make (28.1-2) type is:

$$m_r (\ddot{R}_{\theta r} - R_{\theta r} \dot{\theta}_r^2) = -\frac{2GM_{\odot}m_r}{R_{\theta r}^2} \quad (28.15)$$

Similarly, will (28.4) and (28.5) type substitution (28.15) type arrangement must:

$$\frac{du_r^2}{d\theta_r^2} + u_r = 2GM_\odot \left(\frac{m_r}{H}\right)^2 \tag{28.16}$$

Make $u_r = C_1 \cos \theta_r + C_2$, $\frac{du_r}{d\theta_r} = -C_1 \sin \theta_r$, $\frac{du_r^2}{d\theta_r^2} = -C_1 \cos \theta_r$, substituting (28.16) type, solution of differential equations (28.16) declined to:

$$R_{\theta_r} = \frac{\frac{1}{2GM_\odot} \left(\frac{H}{m_r}\right)^2}{1 + C_1 \frac{1}{2GM_\odot} \left(\frac{H}{m_r}\right)^2 \cos \theta_r} \tag{28.17}$$

Make $P_r = \frac{1}{2GM_\odot} \left(\frac{H}{m_r}\right)^2$, $E_{\theta_r} = \frac{C_1}{2GM_\odot} \left(\frac{H}{m_r}\right)^2$, (28.17) type also said:

$$R_{\theta_r} = \frac{P_r}{1 + E_{\theta_r} \cos \theta_r} \tag{28.18}$$

This is what we are familiar with conical surface cutting line track equation of motion.

By the same token, first of all, to the photon skim over the sun surface speed $v_\theta = v_c = c$, surface cutting position $\theta_{r1} = 0$, $R_{\theta r1} = 6.9599 \times 10^8$ m. The above data substitution (28.17) and (28.18) type: $P_r = 1.64016744 \times 10^{14}$, $E_{\theta r} = 235658.6272$.

Make $R_{\theta r2} = L_{\odot rd} = 1.496 \times 10^{11}$ m, the above $P_r = 1.64016744 \times 10^{14}$, $E_{\theta r} = 235658.6272$ value substitution (28.18) type: $\theta_{r2} = 89.73368161^\circ$. Photon precession orbit bending of $\Delta L_{\odot rd}$, bending Angle α_r value, also can see from figure 28.2 simplified calculation equation for:

$$\Delta L_{\odot rd} = R_{\theta r1} - L_{\odot rd} \cos \theta_{r2} = 631862.9056 \text{ (m)} \tag{28.19}$$

$$\alpha_r = 2 \arctg \frac{\Delta L_{\odot rd}}{L_{\odot rd} \sin \theta_{r2}} = 1.742412937 \text{ //} \tag{28.20}$$

28.3 absolute time-space Newton and Einstein relative concept of space-time relationship

28.3.1 Newton and Einstein's absolute time-space relative concept of space-time relationship

In Newtonian mechanics absolute time-space readers not only are familiar with, and formula and physical model are simple, intuitive and easy to understand. According to the modern astronomy research field observation distance has been extended to tens of billions of light-years above; the author in 21 ~ 27 chapter systematically infinite eternal cosmological model. Especially in section 26.4 summary of the gravitational field in the whole universe evolution in the leading role. This special emphasis on: Newton's absolute time and space, it is to point to infinite eternal cosmological model of all objects, from the invisible black hole to the size of the galaxy, stars, planets celestial, nebula and meteorites, and even nebula every atom, molecule, which in any moment of the corresponding space coordinate position and the corresponding space time, it is absolutely not because any other celestial bodies, atomic, molecular, and the presence of relative motion and change. Chapter 5 by electromagnetic wave physical characteristics and neutrino field as electromagnetic wave propagation medium can be demonstrated that: absolute space and time also includes all the static or beyond less than the speed of light sports bodies and meteorites, nebula, atomic, molecular relative static neutrino field of space and time.

Similarly, as physics history background condition limit, Einstein until the death of all don't know neutrino existence, more do not know neutrino field, the universe space background 2.73 K microwave radiation and the relationship between the electromagnetic wave propagation. And ignore the moving light source will occur Doppler frequency shift phenomenon. Directly from the speed of light invariance principle and lorentz transformation formula of founded the special theory of relativity, which refers to the relative time and space,

we now can see: the relative space and time is to point to in neutrino field movement of the object relative neutrino field relative space and light or electromagnetic wave in the relative neutrino field relative space (wavelength) to spread the relative time (cycle). When the movement of the object from the static began to accelerated motion and final reduction to static, it corresponds to the space coordinates and time should be infinite eternal cosmological model, including the static neutrino field, the absolute space and time. In other words, the relative theory of relativity of time and space, only is for to tend to the speed of light body in motion is relatively neutrino field along the direction it is moving in. And other objects exist or not, whether the relative motion completely irrelevant!

28.3.2 Relative time and space scope

Since Albert Einstein in the photoelectric effect research put forward the photon with wave-particle duality argument since, can confirm, 100 years, the international scientific community in all experimental study, are confirmed. Now, we have to face such a sensitive problem: photon after journey form light is must take it as a representative including neutrino field around the space, right? Should represent the photon as a particle of precession orbit more appropriate??? Even if neutrino it is particle, its fluctuation, precession orbit and photon completely the same, in the sun under the action of gravity field is also happen precession orbital bending phenomenon, can represent the space around bend??? Similarly, all the objects, no matter quality and gravitational field strength size, the photon, the neutrino and all other celestial gravity effect, also can only produce particles and other objects into dynamic track bending phenomenon, but is not the so-called space and time bending!!!

Today, we already know sports light source will occur doppler frequency shift of physical essence. Photons into dynamic wavelength and frequency of the product the speed of light c , is for constant. (Photon wave and precession orbit wavelength completely equal, in order to more intuitive reasoning relative nature of space and time, here specially discuss photons precession direction orbit wavelength). See figure 28.3, if moving objects in A, B, C between two points on the attachment, AB line and X axis parallel, moving objects C to B movement. At any moment from the object to A, B two out of light, when it into A point, reduce the frequency, wave length, growth; When it into B, the frequency increases, the wavelength shorten. The precession and photon orbit wavelength and frequency of the product is the speed of light c , still is constant. Put the object C movement speed of v , frequency shift of the frequency spectrum for ν' , because $\nu' = \frac{c}{\lambda'}$, $\nu = \frac{c}{\lambda}$,

make $t' = \frac{\lambda'}{c}$ $t = \frac{\lambda}{c}$, the electromagnetic wave theory of relativity Doppler frequency shift effect:

$$\nu' = \frac{1 + \frac{v}{c}}{\sqrt{1 - (\frac{v}{c})^2}} \nu \tag{28.21}$$

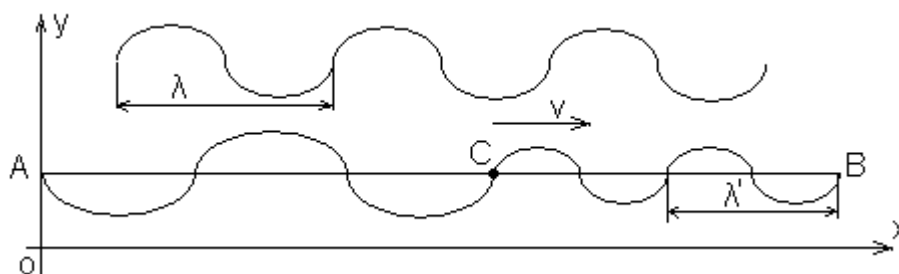


Figure 28.3. Movement of the light source spectral Doppler frequency shift and wavelength λ' , frequency ν' change schematic diagram

By (28.21) type, frequency shift of spectral wavelength λ' for:

$$\lambda' = \frac{c}{\nu'} = \frac{c\sqrt{1 - (\frac{v}{c})^2}}{\nu(1 + \frac{v}{c})} = \lambda \frac{\sqrt{1 - (\frac{v}{c})^2}}{1 + \frac{v}{c}} = \frac{\lambda - vt}{\sqrt{1 - (\frac{v}{c})^2}} \tag{28.22}$$

Similarly, the speed of light c through the frequency shift of photon precession direction each wavelength λ' needs time t' for:

$$t' = \frac{\lambda'}{c} = \frac{\lambda - vt}{c\sqrt{1 - (v/c)^2}} = \frac{t - \frac{v}{c^2}\lambda}{\sqrt{1 - (v/c)^2}} \quad (28.23)$$

Will (28.22) and (28.23) two type of photon relative precession orbit wavelength λ' , time t' and relativity of the relative space and relative time relation is:

$$x' = \frac{x - vt}{\sqrt{1 - (v/c)^2}}, \quad t' = \frac{t - \frac{v}{c^2}x}{\sqrt{1 - (v/c)^2}}$$

Obviously, they are identical. This can be concluded that Einstein's relative space, light is movement to occurred Doppler frequency shift change after the photon in the precession direction orbit wavelength λ' . Relative time is the speed of light c through each orbit wavelength λ' needed for the relative time t' , namely cycle. We come again analysis chart 28.3 shows the high speed motion object C, no matter in A and B between any position, as long as it can the instantaneous static, or slow to rest, by (28.22) and (28.23) type can see: it between two points A and B of absolute space and time relationship, is still Newton's absolute time and space. And, still can further see: static this A, B two if we are to high speed movement of the C point the light, no matter C point in A and B between any position, when light to C point period, are not happen doppler frequency shift; (as long as the reader to understand is as follows: if A and B does not exist between high speed motion object C, then from the rest of the A, B two light from each other in A and B the transmission between is not going to happen doppler frequency shift. When A and B between the high speed motion object C, then from the rest of the A, B two light from each other in C object side through and into C object before, also won't happen doppler frequency shift) The space between AC and CB and the speed of light through the need of the time Newton's absolute space and time. So, Einstein's theory of relativity nature of the problem space and time in the high speed motion object a light doppler frequency shift change of photon precession direction after the length of the track, λ' , the speed of light c through each track length λ' needs time t' , also is the cycle, and Newton objects when static absolute space and time confuse STH with STH else!!!

Integrated the inference, the relativity of the twin paradox, the clock problem and relative time, space and Newton's absolute time, space relationship between all are lead edge and the solution.

Front section 26.4 it has been proved that able to tend to the speed of light motion objects, can only be particle. Any in atomic and molecular composition of FeiHangTi, when it to tend to the speed of light movement, all in the atomic and molecular electronics and the conditions within the nucleus of high and low energy π^\pm spin precession direction, will turn to the object movement direction, which will be like the high temperature thermal motion vaporizing, will be completely collapse. The consequences of which are between atoms, molecules by the electron cloud "linked to chemical and physical mechanics of materials, electromagnetic properties are qualitative change will happen. Ultimately burst into nuclear or particle, become as shown in figure 1.2 shows the fluctuation, the spin and precession orbit combination of particle track motion state. The core of a galaxy, the quality of the huge black hole edge accretion disk atomic, molecular are all destroyed, and the last in the gravitational field and under the action of neutron material ring is a very good example. In human existing science and technology level, to be in the near future will be able to build a spacecraft flight tends to the speed of light, especially to overcome all materials will be thoroughly burst into nuclear or particle difficulty, also is only fantasy.

What is our universe by a super density, super high temperature, and high can so-called mathematical singularity cuhk explosion form? Or the author in chapter 21 ~ and reasoning, our universe is Newton's absolute time and space under the condition of the infinite and eternal universe. Believe that the reader now know fairly well.

Besides, the modern civilized men out of town on a plane are now common. Excuse me: we will have all mankind have the habit of the time, London Greenwich observatory and Beijing, Moscow and Washington...

The large area of the time, all to their respective not coherent plane relative to the atmosphere in flight, in a relatively sound velocity in the atmosphere relative space needed for spread of the relative time? As for all of the flights, the aircraft in flight their relative time and relative to the atmosphere of the relative space how to determine, estimate the modern and advanced computer are powerless. Because the atmosphere of the earth's surface and relative is not completely absolute rest, air formation of wind direction, wind speed is a common atmospheric phenomenon. Even if can mark the so-called the plane relative to somewhere in the atmosphere relative space and time, this to happen doppler frequency shift change after the acoustic wave length, and speed of sound through the wavelength need relative time, as a measure of the relative time scale in human real life and what is the point?

So, Einstein's theory of relativity of the relative time and space, only suitable for particle physics research field. We have absolutely no need now is asking for trouble, simple, intuitive classical physics law, formula all human complication. The time and space theory of relativity recklessly spread to the whole astronomy and astronautics field, even it as science knowledge on the science and technology personnel and the teachers and students. This will be Einstein's life by one of the most serious and difficult to forgive mistakes. This error will be infinite directly, eternal universe model guide hot big bang to form a cosmology, and statistical theory of quantum physics three joint caused by the research in the field of modern physics stagnant, contradictory problem, loopholes, go astray. Make broad science and technology personnel and the teachers and students to modern physics terrified, will affect their modern and future in many high-tech fields of innovative research ability. The serious consequences of mankind are directly delay of modern science and civilization development process.

28.3.3 The future of spectrum red shift parameter measurement research proposals

Chapter 5 of the book has proved neutrino field characteristics, electromagnetic wave propagation principle and parameter calculation. By using thermodynamic method rigorous proof that the neutrino field is to spread the electromagnetic wave "of the etheric field, electromagnetic wave is a longitudinal wave! In chapter 22 demonstrates spectrum red shift principle and red shift parameter calculation, and the Hubble constant as astronomy field only accurate range scale (quasars except). Now, all the debate focus all boils down to how to understand the Hubble constant, is the relative motion in Kepler's red shift? Or photon in the long the universe space long-term operation, the energy consumption is gradually neutrino place to cause red shift? So, the accurate determination of photon or electromagnetic wave in the space of long distance transmission of red shift parameters is to solve two universities sent long-term debate reliable evidence. Because the red shift of minimum, in limited space and time, at the present level of technology, it is very difficult to measure effectively.

Therefore, from the first physical model a analogy analysis. We know, any wave propagation, whether longitudinal or transverse wave, must through the medium molecular vibrations to transfer. So, all medium molecular in vibration in the process, will be because of the friction between temperature and some of the energy consumption wave. From the system total energy conservation law can inference, any wave in the transmission process, will appear energy loss. So, we now although cannot measure electromagnetic wave red shift, but to existing technical level, determination of sound waves in a calm sea, along with the increase of the propagation distance from the red shift parameter or certain. Moreover, with the scientific community existing fluid mechanics, continuous elastic medium mechanical wave theory, and even can be directly on the sound waves in the air in the process of the propagation of the analysis of energy consumption.

29 Relationship of neutrino and graviton dark matter

Yu-Xiang Huang, Zhen-Qiang Huang

kexuetansuoze@126.com tel: 13338400718

This paper is completed in May 2012; initially to the British science journal contribution was rejected. And then to the United States scientific journals and physical review contribution, because the program is not familiar with no success. Finally had to published in Chinese paper preprints and network, and to domestic and international part of the scientific research personnel E-mail sent communication. In this book is a final chapter 29 logging.

Abstracts

This paper discusses the neutrino field in the space of the universe. According to the neutrino energy shocks in the fact that the neutrino field principle the formation of quantum gravity. According to the solar neutrino disappearance, neutrino energy density is derived. The inference neutrino field is dark matter. Use a simple and intuitive physical model to answer fortunately the four challenges.

Keyword:

Neutrino field, Neutrino energy loss, The quantum gravitational field, Graviton energy, Dark matter.

1. Introduction to section

The author at first just want to use neutrinos there are energy shocks, the speed of light, linear motion, the extraordinary ability to penetrate ... and other features. To a large number of neutrino flow along the radial penetration of a spherical celestial bodies, the friction loss of energy into the energy of the graviton, to explore the principle of the formation of the quantum gravitational field. Surprised to discover that quantum gravitational field, neutrino field, solar neutrino disappearance and dark matter dark energy of the physics community today is intrinsically linked. We happened to answer the five challenges.

In the future, if we can directly use the ready-made neutrino field characteristics, to development of linear penetrating confidential directional communication technology, certainly enticing. If we can further the development and utilization of the neutrino dark matter energy in the universe in space, it is more likely to succeed than the development thermonuclear fusion reactor ITER. With the author "Cold fusion reactor" Invention patents projects is the best¹. See the author's follow-up papers and patent applications.

2. Neutrino field characteristics

Modern scientific research has found that the original nebula neutron decay into protons, electrons, associated with the electron neutrino $\bar{\nu}_e$. The stars also produce a large number of electron neutrino. The average energy is

$\bar{W}_{\nu 0} = m_{\nu} c^2 = 15 \sim 30 eV = 22.5 eV^2$. since the birth of the universe gave rise to countless stars. Only the sun produces neutrinos about 10^{15} per second penetrate the human body³. Therefore, the space of the universe will be inevitably full of neutrinos. Neutrinos are electrically neutral elementary particles, linear motion of the neutrinos travel at the speed of light. Matter interactions with atoms, molecules and objects are very weak. Neutrinos have extraordinary penetration and diffusion characteristics. They are necessarily similar to the state of motion of the gas molecules, and evenly spread in the space of the universe, the formation of the neutrino field. The laboratory has demonstrated that the neutrino energy oscillation exists².

3. Formation principle of quantum gravity field

Figure 1 is shown, neutrino around any celestial body or the movement of objects. We will direction of motion were divided into radial, warp, weft of positive and negative direction. Along the radial second piercing or penetration of the earth, or any spherical celestial body surface per unit volume fluxes are N_{vr0} . Relationship with the objects inside and outside the flux N_{vri} is:

$$N_{vri} = \frac{N_{v0}c}{6} \left(\frac{R_2}{R_{2i}} \right)^2 / m^3 = N_{vr0} \left(\frac{R_2}{R_{2i}} \right)^2 / m^3 \quad (1)$$

In the (1) $R_{2i} < R_2$, indicating that within the earth, $R_{2i} \geq R_2$ on the surface or external. Make the unit of volume flux N_{vr0} of the neutrino beam through the earth along the radial direction, each neutrino friction losses in the energy $\Delta\bar{W}_{v2} = k_w M_2 / 4\pi R_2^2 N_{vr0}$. It is proportional to the quality and penetration of celestial bodies, and is inversely proportional to the celestial body surface area and per unit area fluxes N_{vr0} . The k_w is quantum of the graviton energy coefficient. Make k_{wvj} for continuous along the radial penetration j objects, the background field graviton energy $\Delta\bar{W}_{vi}$, due to the friction of the j objects coefficient of variation, in units of m/s^2 .

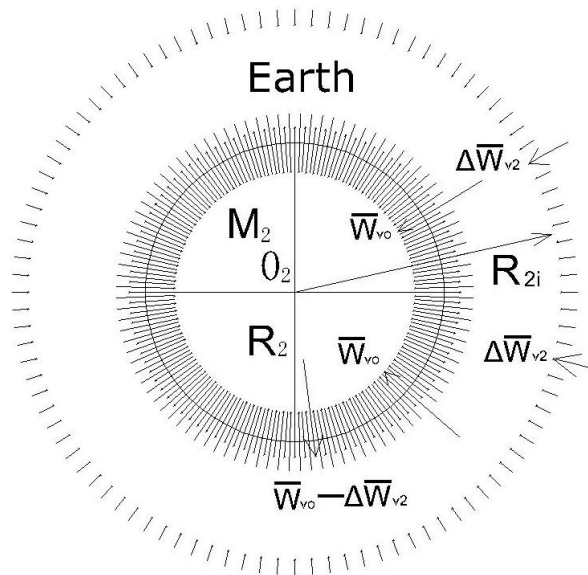


Figure1, Assumed that the solar system the vicinity of the original density is N_{v0} of the electron neutrino and average energy is \bar{W}_{v0} . Electron neutrino radial penetrates the earth, the friction loss of energy is $\Delta\bar{W}_{v2}$. Residual energy is $(\bar{W}_{v0} - \Delta\bar{W}_{v2})$, $\bar{W}_{v0} - (\bar{W}_{v0} - \Delta\bar{W}_{v2}) = \Delta\bar{W}_{v2}$. Equivalent to energy $\Delta\bar{W}_{v2}$ is transformed into graviton energy. On the surface of the Earth and the outer space to the center is forming shrinkage of the graviton background field.

The total energy of the graviton friction loss into $\Delta\bar{W}_{vij}$ a spherical celestial bodies or any celestial object, these all can be expressed as:

$$\Delta\bar{W}_{vij} = k_{wvj} \Delta\bar{W}_{vi} = k_{wvj} \left(\frac{k_w M_i}{4\pi R_i^2 N_{vr0}} \right) \tag{2}$$

$$P_{ri} = \Delta\bar{W}_{vi} N_{vri} \tag{3}$$

Shown in Figure 2, we argument all along the axis in the two-cones the O_2O_3 projection line direction. (So that treatment can simplify the calculation). From (1), (2), (3), the radial direction total flux $\bar{\Phi}_2$ and $\bar{\Phi}_3$, of neutrinos stream, the gravitational force F_{23} and F_{32} between Earth and the Moon, can be expressed as:

$$\bar{\Phi}_2 = N_{vr0} \int_0^{\alpha_2} 2\pi R_2^2 \sin \alpha \cos \alpha d\alpha = \pi N_{vr0} \left(\frac{R_2 R_3}{R_{23}} \right)^2 \tag{4}$$

$$\bar{\Phi}_3 = N_{vr0} \int_0^{\alpha_3} 2\pi R_3^2 \sin \alpha \cos \alpha d\alpha = \pi N_{vr0} \left(\frac{R_2 R_3}{R_{23}} \right)^2 = \bar{\Phi}_2 \quad (5)$$

$$F_{23} = \int_0^{\alpha_3} 2\pi R_3^2 \sin \alpha P_{ra} \cos \alpha d\alpha = \frac{k_{wv2} k_w M_3}{4} \left(\frac{R_2}{R_{23}} \right)^2 \quad (6)$$

$$F_{32} = \int_0^{\alpha_2} 2\pi R_2^2 \sin \alpha P_{rb} \cos \alpha d\alpha = \frac{k_{wv3} k_w M_2}{4} \left(\frac{R_3}{R_{23}} \right)^2 \quad (7)$$

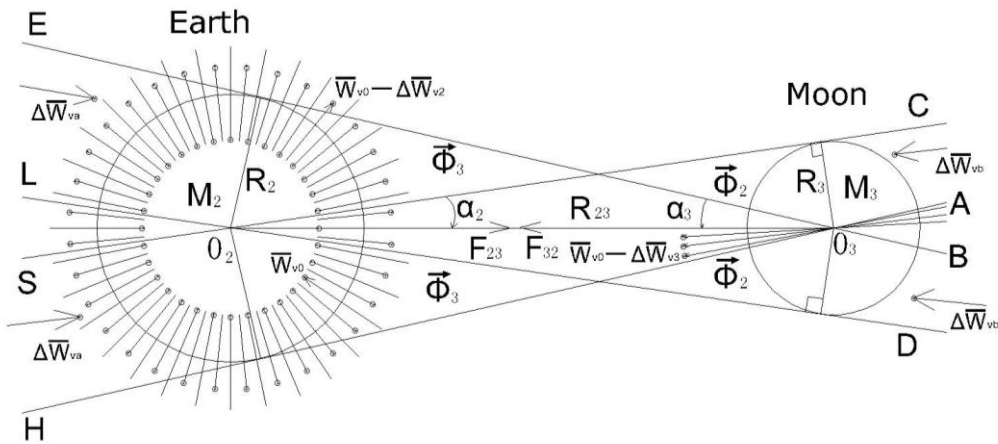


Figure 2 neutrino field formation principle of quantum gravitational field. In LO₂D and SO₂C segment consists of two cones, neutrino flux total flux all are $\bar{\Phi}_3$ along radial direction, In the AO₃H and BO₃E segments all are $\bar{\Phi}_2$. From left to right, Neutrinos along the radial penetration of Earth, friction energy loss is $\Delta\bar{W}_{v2}$, it into the energy of the graviton. It formed the background field of the graviton. Continue to penetrate the Moon as the friction losses in the total energy $\Delta\bar{W}_{vb}$. Similarly, from right to left through the friction loss of energy is $\Delta\bar{W}_{v3}$ and $\Delta\bar{W}_{va}$.

Figure 3 and Newton's law of gravitation shows: $F_{23} = F_{32} = GM_2 M_3 / R_{23}^2$. Into (6), (7), we obtain: $k_{wv2} = 4GM_2 / k_w R_2^2$, $k_{wv3} = 4GM_3 / k_w R_3^2$. The two outside the cone, the graviton $\Delta\bar{W}_{v2}$ and $\Delta\bar{W}_{v3}$ forces are symmetrical with each other offset. Energy coefficient k_{wv2} and k_{wv3} of variation and then into (2) may:

$$\left\{ \begin{aligned} \Delta\bar{W}_{va} &= \left(\frac{4GM_2}{k_w R_2^2} \right) \left(\frac{k_w M_3}{4\pi R_3^2 N_{vr0}} \right) \dots\dots\dots \text{8-1)} \\ \Delta\bar{W}_{vb} &= \left(\frac{4GM_3}{k_w R_3^2} \right) \left(\frac{k_w M_2}{4\pi R_2^2 N_{vr0}} \right) = \Delta\bar{W}_{va} \dots\dots\dots \text{8-2)} \end{aligned} \right.$$

From (4) (5) and (8) equations, because $\bar{\Phi}_2 = \bar{\Phi}_3$ and $\Delta\bar{W}_{va} = \Delta\bar{W}_{vb}$. Therefore, we have quantum gravitational field to prove Newton's law of universal gravitation:

$$\Delta\bar{W}_{vb} \cdot \bar{\Phi}_2 = F_{32} = F_{23} = GM_2 M_3 / R_{23}^2.$$

4. The mystery of missing solar neutrinos

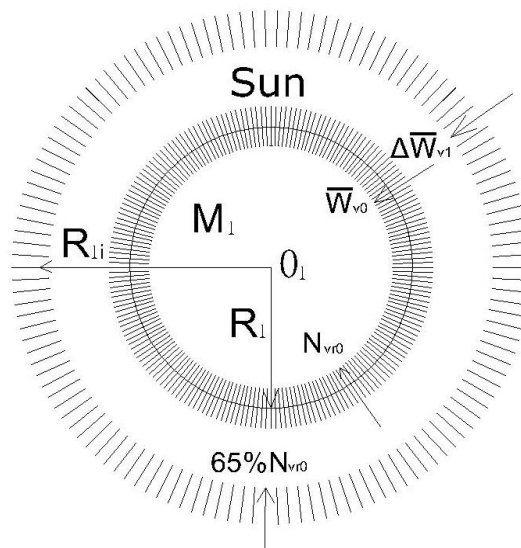


Figure3, neutrinos along the radial penetration of the sun, the friction loss of energy is $\Delta\bar{W}_{v1}$. If most 65% of the electron neutrino energy of all the sun been intercepted absorption, the neutrino energy is absorbed into all the energy $\Delta\bar{W}_{v1}$ of the graviton. The outer space been formed a unidirectional contraction of the 65% graviton $\Delta\bar{W}_{v1}$ background field to the center of Sun.

According to the electron neutrino missing about 65% events, the penetration of solar neutrinos friction energy loss $\Delta\bar{W}_{v1} = 25 eV$, And then penetrate the total energy of the neutrino friction loss after another sun $\Delta\bar{W}_{v11} = 50 eV$. Into (8-1), (1), we can obtained: $N_{vr0} = 4.407 \times 10^{31}/m^3$, $N_{v0} = 8.82 \times 10^{23}/m^3$. As in standard condition⁴, $1m^3$ gas molecule number is $N_a = 1000 N_a / 22.4138 = 2.6868 \times 10^{25}/m^3$, so we can get: $N_a / N_{v0} = 30.46$. Once again making (2) $k_w M_1 / 4\pi R_1^2 N_{vr0} = 25 eV$, get: $k_w = 544.078$.

Similarly, by (2) and (8) equations, as long as respectively $k_w = 544.078$, so that all kinds in, you can find the Earth, the moon and other celestial graviton energy $\Delta\bar{W}_{v2}$ and $\Delta\bar{W}_{v3}$ Various parameters in table 1.

Objects parameters and calculated in Table 1¹¹

Celestial name	Quality (kg)	Radius (m)	Loss of energy $\Delta\bar{W}_{vi}$ (eV)
Steel ball	2.932×10^4	1	1.8×10^{-7}
Moon	7.35×10^{22}	1.738×10^6	0.1492
Earth	5.983×10^{24}	6.3673×10^6	0.9049
Sun	1.971×10^{30}	6.953×10^8	25
White dwarf	1.971×10^{30}	6.3673×10^6	298109
Neutron star	1.971×10^{30}	1.738×10^4	4×10^{10}
Remark	In this table is neutrino density along the radial movement of the $N_{vr0} = 4.407 \times 10^{31}/m^3$.		

Be seen from Table 1, the neutrino loss of energy of white dwarfs, neutron stars or black holes are much larger than 25eV. This shows completely absorbed neutrino range is much larger than the actual radius of the celestial bodies. This range should be quite the solar radius, and the formation of quantum gravitation size and total flux $\vec{\Phi}_1$ vector objects independent of the radius.

5.The mystery dark matter

Modern cosmological observations that the visual material in the universe is only about 4%, about 23% percent dark matter, dark energy about 73%⁵. According to astronomical observations, the solar system around the center of the galaxy revolution speed is 250km / s, the orbital radius are about 25200 lightyears⁶. From Newton's law of gravitation, we can obtain the total mass of the Milky Way in the solar system orbits about $M_{01} = 2.23 \times 10^{41} kg$. The astronomical community can be observed and speculated to stellar, stellar wreckage of the black holes, neutron stars, white dwarfs, red dwarfs, planets, nebulae, gas and dust, meteorites etc. only about the amount of material $M_0 = 5.913 \times 10^{40} kg$.

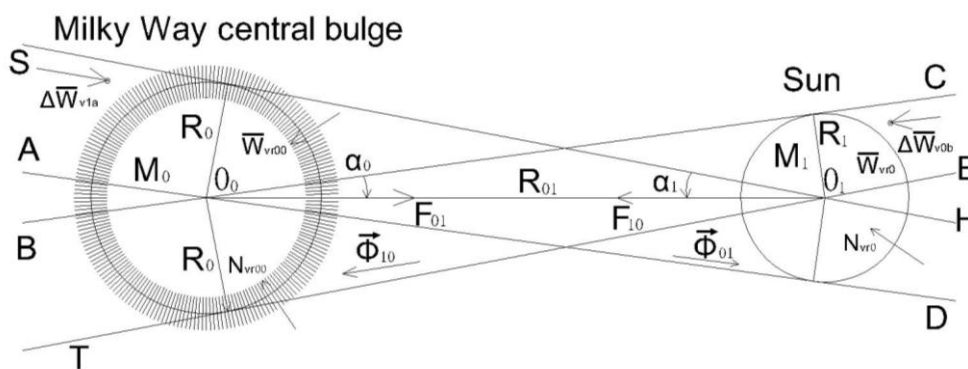


Figure4, the neutrino field density and gravitation strength are relationship. Segments constitute the AO_0D and BO_0C two conical body, the neutrino flow radial total flux within the in EO_1T and HO_1S segments are $\vec{\Phi}_{01}$, within the EO_1T and HO_1S line are $\vec{\Phi}_{10}$. From left to right, neutrinos along the radial penetration of the Milky Way central bulge, the friction loss of energy is $\Delta \bar{W}_{v0}$, it been formed of the graviton energy. Continue to penetrate the sun as the friction losses in the total energy $\Delta \bar{W}_{v0b}$. Similarly, from right to left through the friction losses in energy $\Delta \bar{W}_{v1}$ and $\Delta \bar{W}_{v1a}$.

Formed from the neutrino field in the principle of universal quantum gravitation field to prove, in the penetration of a variety of objects, the neutrino has a different frictional loss of energy or lack of events. Sun for example, see figure 3 and 4 and (8) equations. Because $k_{wvj} = 4GM_1/k_w R_1^2 = 2$, so $k_{wvj} \Delta \bar{W}_{v1} \gg 25eV$ by Sun. They will inevitably lead to most of the absence of the sun as the center of the graviton background neutrino field divergence. Figure 4 shows the AD, BC and HS, ET conic at both ends to extend the area, the vast majority of missing events can cause a wide range of neutrino. Similarly, in the open areas outside the cluster of galaxies and the original density of the neutrino field all are the highest-energy. From the galaxy periphery, the spiral arms to the central nucleus of the ball, due to the presence of various size objects, the neutrino density and energy are in turn reduced. That especially the central bulge area of the galaxy, the massive black holes and dense spherical shell-like distribution of stars and debris, the graviton must pass from tens to tens of thousands of years of time difference. Figure 3 and 4 shows, in many celestial gravitation cones line at both ends to extend the sweep of the airspace, will significantly reduce the original neutrino density N_{v0} and average energy \bar{W}_{v0} , in particular, radial movement of the neutrino density N_{vr0} along the central bulge.

Figure 4, assuming that the neutrino density is N_{vr00} of the Milky Way central bulge area. All of us along the direction of the two cone axis O_0O_1 projection line argument. Because $N_{vr00} < N_{vr0}$, by (1) - (5) and (8)

equations, the neutrino flow to the total radial flux $\bar{\Phi}_{01}$ and $\bar{\Phi}_{10}$, quantum gravity F_{01} and F_{10} between the Milky Way central bulge and the sun, can be expressed as follows:

$$\bar{\Phi}_{01} = N_{vr00} \int_0^{\alpha_0} 2\pi R_0^2 \sin \alpha \cos \alpha d\alpha = \pi N_{vr00} \left(\frac{R_0 R_1}{R_{01}} \right)^2 \quad (9)$$

$$\bar{\Phi}_{10} = N_{vr0} \int_0^{\alpha_1} 2\pi R_1^2 \sin \alpha \cos \alpha d\alpha = \pi N_{vr0} \left(\frac{R_0 R_1}{R_{01}} \right)^2 \quad (10)$$

$$F_{01} = \Delta \bar{W}_{v1a} \cdot \bar{\Phi}_{10} = \frac{GM_0 M_1 N_{vr0}}{R_{01}^2 N_{vr0}} \quad (11)$$

$$F_{10} = \Delta \bar{W}_{v0b} \cdot \bar{\Phi}_{01} = \frac{GM_{01} M_1 N_{vr00}}{R_{01}^2 N_{vr0}} \quad (12)$$

When the neutrino density $N_{vr0} = 4.407 \times 10^{31} / m^3$ in the vicinity of the solar system is calibration of quantum gravity constant, continuous penetrate the mass and radius of the two celestial bodies are the same, the friction losses in the total energy $\Delta \bar{W}_{v1a} = \Delta \bar{W}_{v0b}$ of each neutrino will remain unchanged. The two celestial quantum gravity values on the basis of Newton's law of gravitation, but also with other regions in which the neutrino density is proportional to. Such as (11) and (12) $F_{01} = GM_0 M_1 / R_{01}^2$ and $M_{01} N_{vr00} / M_0 N_{vr0} = 1$. Therefore, the neutrino density in the central bulge a significant reduction, equivalent to substantially improve their quality, leading to misjudgment of the central bulge of a large number of dark matter.

Constitute the quantum gravitational field of neutrino dark matter, dark matter is reflected by the gravitation field of non-baryonic matter. Modern cosmology speculate that the density of matter in the whole universe is $\rho_0 = 6 \times 10^{-27} kg/m^3$. We collected the derivation of the average energy and density of the electron neutrino is 22.5eV and $N_{v0} = 8.82 \times 10^{23} / m^3$, The neutrino field density of the nearby area of the solar system are $\rho_{ve} = 3.54 \times 10^{-11} kg/m^3$. Because $\rho_{ve} / \rho_0 = 5.9 \times 10^{15}$, Therefore, the neutrino particle density material quality is far greater than the quality of the visible matter universe, the dark matter than enough.

Conclusion

This paper argues that the physical characteristics of the neutrino, the establishment of the principle of quantum gravity field. According to the solar neutrino disappearance, deduced the neutrino particle density of matter. Lucky enough to answer with a simple and intuitive physical the model, be including four of the dark matter problem.

References:

1. "Cold nuclear fusion reactor" patent application
CN200910129632.7 Huang Zhenqiang 2009
2. <http://baike.baidu.com/view/9474.htm>
3. <http://news.163.com/12/0313/09/7SFF7VIJ00014JB6.html>
4. Physics at the University Manual P665 ~ 668, Shandong Science and Technology Press Pen-Wang Cheng etc 1985
5. http://www.ihep.cas.cn/kxcb/kjcy/200907/t20090723_2160257.html
6. <http://www.docin.com/p-324814333.html>
7. Observational cosmology Xiang-Tao He P227 Science Press 2000

Natural magazine editor Ladies and Gentlemen:

How are you!

The author at first just want to use neutrinos there are energy shocks, the speed of light, linear motion, the extraordinary ability to penetrate ... and other features. To a large number of neutrino flow along the radial penetration of a spherical celestial bodies, the friction loss of energy into the energy of the graviton, to explore the principle of the formation of the quantum gravitational field. Surprised to discover that quantum gravitational field of the physics community today, neutrino, solar neutrino disappearance and dark matter is intrinsically linked. We lucky enough to answered the f0ur problems.

In the future, if we can directly use the ready-made neutrino field characteristics, the development of linear are penetrating confidential directional communication technology, certainly enticing. If we can further the development and utilization of the neutrino dark matter energy in the universe in space, it will more than thermonuclear fusion reactor ITER project is more likely to succeed. Even better than the author of "Cold nuclear fusion reactor" patent for invention projects. See the author's follow-up papers and patent applications.

We hope this paper can cause the majority of modern physicists and fans, and prospects interested in the development of future neutrino field.

This article about have 2000 words, 4 small charts, 1 table. To takes about 3 to 4 pages.

Thank you!

Huang Yuxiang Huang Zhenqiang

2012.7.6

Address: No. 68, Fuzhou, Fujian Province, China Jinan District West Yuan Village, West fen Road

Tel: 86- 0591-28238177 Email: kexuetansuoze@126.com

Note: We do not have a fax machines, please use your e-mail to contact us.

Conclusion

The Book review

This book will classical Newtonian mechanics, electricity dynamics, thermodynamics, energy relativity into micro field, the establishment of basic particle fluctuation, spin quantization steady state vertical double elliptic orbit motion model. It fluctuation are spin cylindrical spiral orbital motion model. Deduced basic particle related orbital motion equations. Using the simulation method, which successfully solved the statistical theory of quantum mechanics most long-term unable to solve the key problem; And in orbit theory of quantum physics theory model, the establishment of a absolute time-space conditions of infinite eternal cosmological model, so as to solve the thermal explosion formation age of the universe, dark matter in cosmology composition, structure and bright, dark matter of the transitions between circulation problem; Finally realize the neutrino field as a grand unified field medium, Newton's absolute time and space and Einstein's relative time and space, and strong, weak, electrical, magnetic and gravitational field interaction between role, and to realize the microscopic and macroscopic view field and space between the grand unified whole.

Chapter 1 ~ 6 particle physics demonstrates the basic particles are all along the fluctuation, spin quantization steady state vertical double elliptic orbit or cylindrical spiral orbital motion of the law. Sure all the basic particle are made with a unit charge "charged particle" aggregate composition, derived fine structure constant, particle internal structure, composition, energy, momentum forming principle and related parameter calculation equation. Special proof that the photon and neutrino internal are made by a pair of electric dipole. Only difference lies in the electric dipole of different rotation frequency. Proof that the strong, weak, electricity, magnetic interaction are electric, magnetic interaction. Given the basic particle inside, electric, magnetic field interaction force strength, split decay energy, average life, related parameters of the accurate solution. To solve the point charge energy "divergence" difficult to classical electrodynamics theory unconditional restrictions in microscopic particle field to provide the basis. Prove the universe space 2.73 K blackbody background microwave radiation is a medium by neutrino oscillation energy caused by electromagnetic wave, the neutrino field is that previous "ether" field. Neutrinos, photon excitation conversion process, the electromagnetic wave, the photon wave particle duality transformation critical energy and propagation characteristic, movement speed. Accurately simulated protons, neutrons, internal structure, the electromagnetic field distribution characteristics, spin magnetic moment value. Pointed out those protons, neutrons are exist "quark" false reason.

Chapter 7 ~ 14 in nuclear physics design nuclear internal structure model, combined with particle physics research results, we have successfully resolved the nucleus internal structure, force, magnetic moment forming principle; All in nuclear particle orbital motion combination features, including nuclear force, energy, magnetic moment, each parameter calculation equation. Given α^{++} particle, p^+ proton, β^\pm electronics and γ -ray been formed principle and the energy spectrum calculation method. Introducing neutrino to electric dipole means to participate in the nucleus, protons, neutrons, and other basic particle energy, structure and split decay principle.

Chapter 15 ~ and atomic physics demonstrates the atomic outer, times of outer all electronic are fluctuating, spin, additional lateral orbital motion of ellipsoid revolved around the nucleus movement way; Reveal atomic outer, times of outer "s, p, d, f type electron cloud shell" form nature. In all atomic spectrum, level and other parameters of the simulation process, only through the small range rationally adjust the atomic internal a layer of electronic elliptic orbit centrifugal rate are all solve the problem. Proof of the chemical reaction of electronic excitation or transition, energy change of so-called virtual photon participation is actually neutrino participation.

20 ~ 26 chapter infinite eternal cosmology, the spectrum red shift, 2.73 K cosmic blackbody background microwave radiation and Mr Bers paradox in photon stroke to total energy conservation law overall argument for infinite eternal cosmological key basis. Pointed out that Hubble's law can be precise range scale. Day literati popular age of the universe is only measured star age, is not the galaxy's age. The universe accounts for more than 90% of the dark matter is dead stars, galaxy, even the remains of galaxy clusters, the dark matter about age has no meaning. The design of the interior of a black hole neutron material ring structure can avoid gravitational collapse, leading to the total energy, gravitational field strength, gravity range into infinity "divergence" difficult. To solve the accretion content of gravitational field potential energy transformation mechanism and polar axis injection, radio principle, be accretion of dark matter in certain conditions well activation regeneration, the black hole conflict big bang into bright material nebula create conditions. Proof of neutrino participate the whole process.

27 ~ 29 chapters space-time relativity in question, the design of quasars internal structure model, solved the unimaginable quasars huge energy radiation principle and supernormal value spectrum red shift mechanism. Make absolute time-space conditions of infinite eternal universe model be fully demonstrated. Further analysis

of the gravitational field in the whole universe evolution in the leading role; The theory of relativity, in the space and time the essence of bending, is photon in the gravitational field under the action of precession orbit bending! Further demonstrates the neutrino field physical characteristics, the establishment of a universal gravitation forming principle. According to the solar neutrino missing events, it to deduced neutrino field particle material density. With a simple intuitive physical model, fortunately have solutions including the graviton and dark matter of the four problems.

New modern physics meaning

The author please mainstream modern physics community and nuclear fusion engineering world calm in the face of the following facts:

1. The capital contribution by tax payers in all the natural scientific research, it is to discover the objective laws of nature, to the advancement of mankind civilization and progress of science, to create the first productivity service, and not for the maintenance of the school's subjective hypothesis of defense. The mainstream school insisted maintenance old modern physics theory system, the modern other natural scientific innovation research, especially for all mankind imminent nuclear fusion energy development research, what can have what kind of role? Don't also should not to tell?

2. This paper pointed out the mainstream school old modern physics theory system in 19 aspects problem and research status, whether all the information given is true?

3. In ancient and modern, Chinese and foreign all modern physicists, including the entire Nobel Prize winner, what a potential on the above a certain aspect problem, even if it is a difficult problem in the a small subject, which gives the qualitative reasonable explanation?

4. What a lucky enough to like the author so, only according to a set of classical particle quantization vertical double elliptic orbit motion model, and Newtonian mechanics and classical electrodynamics and particle energy relativity union, can the 19 aspects of the problem are derived all accurate mathematical physics equation general solution?

5. Although this book shortcomings and mistakes, and inevitably, needs to be correct, however, will be Newtonian mechanics and classical electrodynamics and particle energy relativistic classical particle along the quantization vertical double ellipse model introduced modern physics, overall physical model design basis and related mathematical physics equation is derived calculus process and all the calculation results, with all the observation test data agree with the fact, at present the old modern physics the mainstream academic traditional school can find out the reason of rejection?

To sum up, in the microscopic quantum physics field, the book demonstrates strong, weak, electricity, magnetic interaction are under the control for electric and magnetic interaction. In the macroscopic field, demonstrates the electric, magnetic field, the interaction between the electric and magnetic field media is neutrino field. In the field of view of space, this paper demonstrates that the black hole gravitational field through the accretion disk and polar axis injection, radio will gravitational field potential energy into electromagnetic energy, or conflict big bang, that dark matter activation regeneration transformation ChengMing material nebula whole cycle process. This description: in microscopic and macroscopic, yu view field, in the infinite eternal universe, gravitational field leading unified the electric and magnetic interaction and bright, dark matter into circulation. Special emphasis on neutrino field as the universe space only exist, ubiquitous media field, the neutrino participate the strong, weak, electricity, magnetic interaction and gravitational interaction. Constitute the grand unified field.

Quantum physics, the physics and relativity the three pillars of the modern physics subject to hold up the building. In the preface puts forward some 19 aspects of the problem, the author with the aid of modern high performance computer finally solved all the argument. Classical particle quantization orbital motion model building, theoretical basis is the classical Newtonian mechanics, electricity dynamics, thermodynamics, energy relativity and microscopic particles along the fluctuation, spin quantization orbital motion model organically. All of the equation, the formula derivation and simulation process are not people to join the other parameters and experiment fitting correction coefficient, and finally the calculation results with the experiment, observation of the parameters and physical, astronomical phenomenon all anastomosis. Thus, three disciplines as unified whole comprehensive studies have been a complete success. And have realized classical physics and modern physics all basic physical law between the big unification.

If the book open contribute, they do not have the whole system, and it is hard to understand and accept by modern science. The overall evaluation communication and publication will have one-time solve international three disciplines the effect of long-term debate. If you scholars can overcome school prejudice, fair to the modern physics classical particle quantization orbital motion model general solution - referred to as the new modern physics "carry on carefully, it is easy to see: the preface of the book and the generalization of the international modern physics circles facing a difficult problem of 19, the whole truth. The author only according

to a classical particle quantization fluctuation, spin vertical double elliptic orbit motion model, and Newtonian mechanics and classical electrodynamics and energy relativity union, can to 19 issues can be deduced all accurate mathematical physics equation general solution. Overall physical model design and related mathematical physics equation is derived calculus process and result, and experiment and observation data anastomosis, isn't that what modern physicists nearly years dream physical model and ideal theory system?

So, the proposal should be priority academic innovation based on natural science basic theory research results fair exchange evaluation system. As long as can solve the modern natural science major problems, no matter fee, at one's own expense, the researchers degree, identity or different school, should accept, participate in communication, and fair evaluation. Can't find out the reason for rejection, shall be granted to notice. Has an important value to research results, should be given support and encouragement. The authors believe that the modern physics classical particle quantization orbital motion model general solution, "a book, stand up to scrutiny and time, the inspection.

The book was published,, is what we have found the key "hidden parameter", and through the simulation calculation of the modern physics to solve most of the problems cannot be solved for a long time when. In the face of facts, the scientific community to adhere to, maintain old ideas are not wise. Had better be hand in hand as soon as possible, and work together, so that the theory system to further improve and perfect. All mankind create a new era of scientific civilization service. It is benefit future generations and well-documented immeasurable qualities!

The research results at one's own expenses "cold fusion reactor and new modern physics published, they show that the mainstream of nuclear fusion reactor engineering circles and modern physics circles of subsequent research has no meaning. If will continue to adhere to the school's point of view, will be spent all his life and tax payers a lot after the hard-earned money nothing. Such as dozens of years searching for quark, dark matter particles, graviton and Higgs boson are missing. Dozens of years all the nuclear fusion research, including the ITER international cooperation research progress is slow, hope is frail. Continue will increase historic jokes, in the face of the tax payers and severity of later generations' question, please let your careful consideration.

References

- ① B M Yauorsky A A Detlaf Modern physics manual 1982
- ② in Zhong koga, Early Sichuan, Symplectic male the universe physics
Science press 1978
- ③ Xu Kezun, Higher atomic and molecular physics
Science press 2000
- ④ Nuclide chart preparation group
Nuclide commonly used data sheet
Atomic energy press 1977
- ⑤ He Xiangtao Observation cosmology
Science press 2002