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Viktor Dyachenko,
Engineer,
Odessa, Ukraine

Mechanics of the Stars. Calculation Star Orbits and Speeds.

Key words: big gravitational radius of the interactions, orbital mechanics of stars, over- giant and medium stars and small stars – pulsars, power of the gravitational interaction, field trigonometric identity of the pulsars.

Annotation: In this article presented the not classical orbital mechanics of stars constructed on the basis of the main law of gravitation and natural geometry of space-energy of an internal rotation of stars. From which we can calculate all parameters of orbital gyration of a star round centers natural and galactic or centers of a natural and galactic black hole.

Symbols: $R_\lambda \to$ big gravitational radius of the interactions ;

$R_{орб} \to$ radius of the orbit of the star for centre of the galaxy,

that is to say for black hole of the galaxy

$r_0 \to$ internal radius of the rotation of the star;

$V_c \to$ speed of the orbital rotation of the star;

$V_0 \to$ internal speed of the axial rotation of the star;

$T_{орб} \to$ orbital period of the rotation of the star;

$\overline{T_0} \to$ internal axial period of the rotation of the star;

$T_0 \to$ period of the cyclic moving of the star;

$R_{\lambda S} \to$ own wave radius of the star; $E_S; M_S \to$ energy and mass of the star.

We shall divide stars on two groups: over- giant and medium stars and small stars - pulsars.

For each group of the stars composition system of the equations of the motion. In centre of any galaxy is found fantastic object, named by black hole, unconceived small sizes, in myriads once points less and possessing gigantic amount of the energy. From cosmological theory known that energy of the galactic black hole equal:

$$E_{\mu G} = \frac{1}{\mathbb{N}_{os}} \cdot E_\mu = \frac{1}{\mathbb{N}_{os} \cdot \beta_\gamma^{51/5}} \sim 10^{372.6132562} \text{ erg! ; radius of the black hole:} \to$$

$$r_{\mu\star} = \beta_\gamma^{\frac{23}{5}} \sim 10^{-172.7295769} \text{см!}$$

Black hole possesses its energy of external gravitational field – $E_{\mu nop}$, interacting with all stars of the galaxy.

$$\frac{E_{\mu nop}}{Ç_0^2} = M_{\mu nop}\ ;\rightarrow \text{gravitational mass of the galactic black hole.}$$

Will concern with calculation gravitational equations of the motion general for all stars.

F_{SG} → power of the gravitational interaction of the star with gravifield of the black hole:

$$\boxed{F_{SG} = \frac{1}{R_\lambda^2}\cdot\frac{2\pi\cdot r_{nos}\cdot E_S\cdot E_{\mu nop}}{\frac{1}{\mathbb{N}_{os}}\cdot E_\mu\cdot\frac{Ç_{\gamma nos}^2}{Ç_\star^2}} = \frac{1}{R_\lambda^2}\cdot\frac{2\pi\cdot r_{nos}\cdot Ç_0^4\cdot\frac{E_S}{Ç_0^2}\cdot\frac{E_{\mu nop}}{Ç_0^2}}{\frac{1}{\mathbb{N}_{os}}\cdot E_\mu\cdot\frac{Ç_{\gamma nos}^2}{Ç_\star^2}}}$$

We know that gravitational constant equal:

$$\mathbb{G} = \frac{2\pi\cdot r_{nos}\cdot Ç_0^4}{\frac{1}{\mathbb{N}_{os}}\cdot E_\mu\cdot\frac{Ç_{\gamma nos}^2}{Ç_\star^2}} = \frac{2\pi\cdot r_{nos}\cdot Ç_0^4}{\mathbb{N}_\star\cdot\beta_\gamma\mathbb{N}_{os}} = \frac{2\pi\cdot r_{nos}^2\cdot Ç_0^4}{\mathbb{N}_\star} = \Upsilon_{nos}^2\cdot r_{nos}^2\cdot Ç_0^4\ ;\quad \Upsilon_{nos}^2 = \frac{\mathbb{G}}{r_{nos}^2\cdot Ç_0^4};$$

$$F_{SG} = \frac{1}{R_\lambda^2}\cdot\mathbb{G}\cdot\frac{E_S}{Ç_0^2}\cdot\frac{E_{\mu nop}}{Ç_0^2} = \frac{1}{R_\lambda^2}\cdot\mathbb{G}\cdot M_S\cdot M_{\mu nop}\ ;\quad \text{we shall define: } M_{\mu nop}?$$

$$\mathbb{G} = \frac{2\pi\gamma\cdot r_{nop}\cdot Ç_0^2\cdot C_0^2}{\frac{1}{\mathbb{N}_{op}}\cdot E_\mu\cdot\frac{Ç_{\gamma nop}^2}{Ç_\star^2} = E_{\mu nop}}\ ;\quad E_{\mu nop} = \frac{2\pi\gamma\cdot r_{nop}\cdot Ç_0^2\cdot C_0^2}{\mathbb{G}}\ ;\quad M_{\mu nop} = \frac{E_{\mu nop}}{Ç_0^2} = \frac{2\pi\gamma\cdot r_{nop}\cdot C_0^2}{\mathbb{G}};$$

$$\boxed{F_{SG} = \frac{1}{R_\lambda^2}\cdot\mathbb{G}\cdot M_S\cdot M_{\mu nop} = \frac{1}{R_\lambda^2}\cdot\mathbb{G}\cdot M_S\cdot\frac{2\pi\gamma\cdot r_{nop}\cdot C_0^2}{\mathbb{G}} = \frac{2\pi\gamma\cdot r_{nop}\cdot M_S\cdot C_0^2}{R_\lambda^2}}$$

we shall define F_{SG} as centrifugal power:

$$F_{SG} = M_S\cdot V_c\cdot\omega_{SG}\ ;\quad \omega_{SG} = \frac{\Delta\varphi_{SG}}{\Delta T_{SG}}\ ;\quad \Delta\varphi_{SG} = \frac{V_c T_0}{R_\lambda}\ ;\quad \Delta T_{SG} = T_0^{4/5}\cdot\overline{\overline{T}}_0^{1/5};$$

$$\omega_{SG} = \frac{V_c T_0}{R_\lambda\cdot T_0^{4/5}\cdot\overline{\overline{T}}_0^{1/5}} = \frac{V_c}{R_\lambda}\cdot\left(\frac{T_0}{\overline{\overline{T}}_0}\right)^{1/5};\quad F_{SG} = \frac{M_S\cdot V_c^2}{R_\lambda}\cdot\left(\frac{T_0}{\overline{\overline{T}}_0}\right)^{1/5} = \frac{2\pi\gamma\cdot r_{nop}\cdot M_S\cdot C_0^2}{R_\lambda^2};$$

$$\boxed{R_\lambda = 2\pi\gamma\cdot r_{nop}\cdot\frac{C_0^2}{V_c^2}\cdot\left(\frac{\overline{\overline{T}}_0}{T_0}\right)^{1/5};\quad r_{opб} = \frac{V_c}{C_0}\cdot R_\lambda = 2\pi\gamma\cdot r_{nop}\cdot\frac{C_0}{V_c}\cdot\left(\frac{\overline{\overline{T}}_0}{T_0}\right)^{1/5};\quad T_{opб} = \frac{2\pi\cdot R_\lambda}{C_0} = \frac{2\pi\cdot r_{opб}}{V_c}}$$

Equation of power for internal axial rotation of the star:

$$\frac{E_S\cdot\frac{V_0^2}{C_0^2}}{r_0} = \frac{\Upsilon_\star^2}{r_0^2}\ ;\rightarrow\ \frac{V_0}{C_0} = \frac{\sqrt{\frac{\Upsilon_\star^2}{E_S}}}{\sqrt{r_0}}\ ;\text{где}\ \Upsilon_\star^2 \rightarrow \left[\begin{array}{c}\text{gravitational moment of the energy of the rotation}\\ \text{of the star}\end{array}\right]$$

$$\left[\begin{matrix}\text{from theory of the}\\ \text{planet}\end{matrix}\right]:\ \Upsilon_\star^2 = r_S^{2/5}\cdot 1.754469132\cdot 10^{50};\quad E_S = \frac{\gamma^2}{\sqrt{\alpha}}\cdot\frac{1}{\beta_\gamma^2}\cdot\frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2}\cdot\sqrt{\frac{r_S}{r_{nops}}} =$$

$$= \sqrt{r_S}\cdot 6.579612899\cdot 10^{48};$$

$$\text{then attitude}:\ \frac{\Upsilon_\star^2}{E_S} = \frac{26.66523333}{r_{\lambda S}^{1/10}};$$

Speed of the eta-muons of the interactions $Ç_{\gamma nos}$ we shall define from equation:

$$\mathbb{G} = \frac{2\pi\cdot r_{nos}\cdot Ç_0^4}{\frac{1}{\mathbb{N}_{os}}\cdot E_\mu\cdot\frac{Ç_{\gamma nos}^2}{Ç_\star^2}};\to Ç_{\gamma nos} = \frac{Ç_\star\cdot Ç_0^2\cdot\sqrt{2\pi}}{\sqrt{\mathbb{G}\cdot\beta_\gamma\cdot E_\mu}} = \frac{\sqrt{2\pi}\cdot Ç_0^3}{\sqrt{\mathbb{G}}\cdot\beta_\gamma^{2/5}} = 2.110762748\cdot 10^{92}\ \frac{\text{см}}{\text{sec}};$$

<u>Mechanics of the over-giants and medium stars.</u>

Internal motion of the over-giants and medium stars it is realized simultaneously in two field space-energy Euclid and its mirror symmetrical image. Relationship between they are realized through field trigonometric identity: $(\cos\alpha)^2 = \sqrt{\cos\alpha_\gamma}$. We shall define: $\sqrt{\cos\alpha_\gamma}$ using theory of the interaction:

$$\cos\alpha_\gamma = \frac{V_0\overline{T}_0}{ÇÇ_\gamma T_\gamma};\quad \tan\alpha_\gamma = \frac{\overline{T}_0}{T_\gamma};\quad \sqrt{\cos\alpha_\gamma} = \frac{1}{1+\sqrt{\tan\alpha_\gamma}};\text{т. к. }\overline{T}_0 \gg T_\gamma;\ \text{то}\ \sqrt{\cos\alpha_\gamma}\sim\frac{1}{\sqrt{\tan\alpha_\gamma}};$$

$$\tan\alpha_\gamma = \frac{\overline{T}_0}{T_\gamma}\sim\frac{1}{\cos\alpha_\gamma};\to\sqrt{\cos\alpha_\gamma}\sim\left(\frac{V_0}{Ç_\gamma}\right)^{\frac{1}{4}};$$

$$(\cos\alpha)^2 = \frac{\pi_\gamma}{\pi\cdot\gamma^{1/5}}\cdot\frac{r_0^2}{r_{nos}\cdot r_{\lambda S}} = \left(\frac{V_0}{Ç_\gamma}\right)^{\frac{1}{4}};\text{we already have equation}:\ \frac{V_0}{C_0} = \frac{\sqrt{\frac{\Upsilon_\star^2}{E_S}}}{\sqrt{r_0}};\to\text{we shall define }r_0\text{ и }V_0:$$

$$r_0 = \gamma^{8/85}\cdot\left(\frac{\pi}{\pi_\gamma}\right)^{8/17}\cdot\left(\frac{\Upsilon_\star^2}{E_S}\right)^{1/17}\cdot\left(\frac{C_0}{Ç_{\gamma nos}}\right)^{2/17}\cdot(r_{nos}\cdot r_{\lambda S})^{8/17} = r_{\lambda S}^{79/170}\cdot 314366.5554\ \text{см};$$

$$\frac{r_0}{r_{\lambda S}} = \frac{314366.5554}{r_{\lambda s}^{91/170}};\quad V_0 = \frac{1}{\gamma^{4/85}}\cdot\left(\frac{\pi_\gamma}{\pi}\right)^{4/17}\cdot\left(\frac{\Upsilon_\star^2}{E_S}\right)^{8/17}\cdot\frac{C_0^{16/17}\cdot Ç_{\gamma nos}^{1/17}}{(r_{nos}\cdot r_{\lambda S})^{4/17}} = \frac{274277483.2}{r_{\lambda S}^{24/85}}\ \text{см};$$

$$\text{period of the own rotation of the star we shall define:}\ \overline{T}_0 = \frac{2\pi\cdot\alpha^{4/5}\cdot\gamma^{1/5}\cdot r_0}{V_0} = 0.01702745\cdot r_{\lambda S}^{127/170};$$

$$\text{period of the cyclic motion of the star:}\ T_0 = \frac{2\pi\cdot\alpha^{4/5}\cdot\gamma^{1/5}\cdot r_{\lambda S}}{C_0} = 4.988475145\cdot 10^{-10}\cdot r_{\lambda S};$$

$$\frac{T_0}{\overline{T}_0} = r_{\lambda S}^{43/170}\cdot 2.929666595\cdot 10^{-8};$$

Orbital motion of the stars is realized simultaneously in two field space-energy, relationship between which is defined by field trigonometric identity: $\sqrt{\cos\alpha} = \left(\cos\alpha_\gamma\right)^{1/5}$;

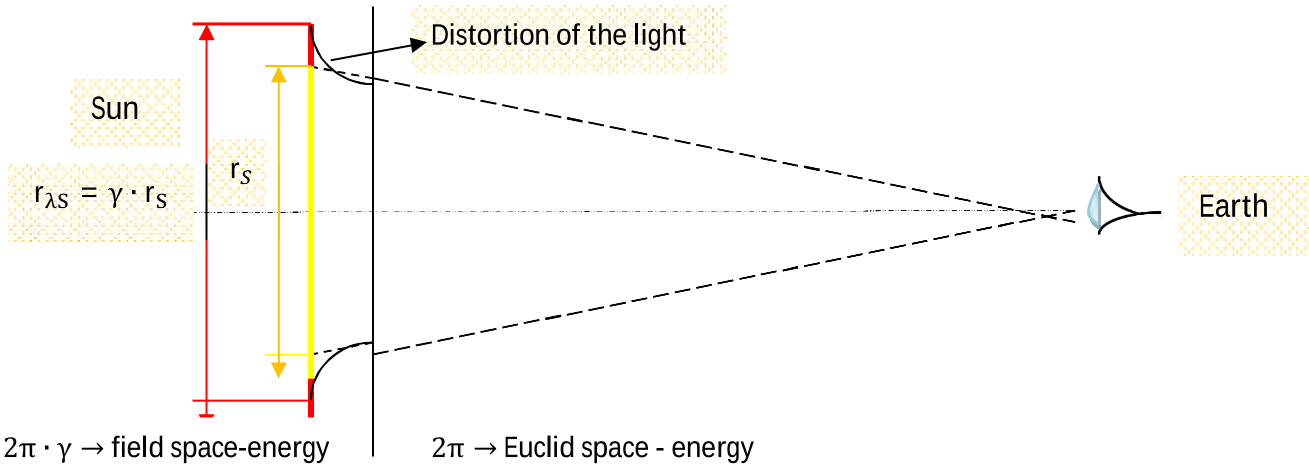
Equation for orbital speed: V_c we shall define as :

$$1 - \sqrt{\frac{V_c}{C_0}\cdot\frac{\left(T_0^2\cdot\sqrt{\overline{\overline{T}}_0}\right)^{1/5}}{\sqrt{T_0}}} = \frac{r_0^{1/5}}{r_{\lambda S}^{1/5}};\rightarrow\ \frac{V_c}{C_0} = \left(\frac{T_0}{\overline{\overline{T}}_0}\right)^{1/5}\cdot\left(1-\frac{r_0^{1/5}}{r_{\lambda S}^{1/5}}\right)^2;$$

We use got system of the equations to our sun with reference to.

For terrestrial watcher, residing in Euclid space-energy, radius of the sun: $r_S = 6.9599\cdot10^{10}$ см. But for watcher, residing in field space – energy of the sun, radius will equal:
$r_{\lambda S} = \gamma\cdot r_S = 7.173529662\cdot10^{10}$ см. when pass from one space – energy in another, rays of the light distortion. So for terrestrial watcher, sun seems smaller.

$\overline{\overline{T}}_{0S} = 0.01702745\cdot r_{\lambda S}^{127/170} = 2192909.259\ \text{c} = \mathbf{25.3808942}$ days $\rightarrow$
$\begin{bmatrix}\text{period of the own rotation}\\ \text{of the sun}\end{bmatrix}$



internal radius of the own rotation of the sun: $r_0 = 3.484650864\cdot10^{10}$ см ;

speed of the own rotation of the sun: $V_0 = 236070.6757\ \frac{\text{см}}{\text{c}} = 2.360706757\ \frac{\text{км}}{\text{c}}$;

speed of the orbital motion of the sun: $\frac{V_c}{C_0} = \left(\frac{T_0}{\overline{\overline{T}}_0}\right)^{\frac{1}{5}}\cdot\left(1-\frac{r_0^{1/5}}{r_{\lambda S}^{1/5}}\right)^2$; $\frac{r_0}{r_{\lambda S}} = 0.485765171$;

$$\frac{T_0}{\overline{\overline{T}}_0} = 1.631849265\cdot10^{-5};\rightarrow\frac{V_c}{C_0} = 1.994096988\cdot10^{-3};\quad \mathbf{V_c = 593.8570373}\ \frac{\text{км}}{\text{sec}};$$

Radius of the orbit of the sun for centre of the galaxy:

$$r_{\text{орб}} = 2\pi\gamma\cdot r_{\text{пор}}\cdot\frac{C_0}{V_c}\cdot\left(\frac{\overline{\overline{T}}_0}{T_0}\right)^{1/5} = \mathbf{3.085860939\cdot10^{22}}\,\text{см};$$

period of the orbital rotation of the sun: $T_{orb} = \frac{2\pi \cdot R_\lambda}{C_0} = \frac{2\pi \cdot r_{орб}}{V_c} =$
$= 3.264933296 \cdot 10^{15} s \sim 103530355.7$ years ;

$$T_{orb} = T_0 \cdot N_r ; \rightarrow 2\pi \cdot R_\lambda = C_0 T_0 \cdot N_r = 2\pi\alpha^{4/5} \cdot \gamma^{1/5} \cdot r_{\lambda S} \cdot N_r ;\ \ N_r = \frac{R_\lambda}{\alpha^{4/5} \cdot \gamma^{1/5} \cdot r_{\lambda S}} ;$$

$$R_\lambda = 2\pi\gamma \cdot r_{nop} \cdot \frac{C_0^2}{V_c^2} \cdot \left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}} ;$$

$$N_r = 2\pi \cdot \left(\frac{\gamma}{\alpha}\right)^{\frac{4}{5}} \cdot \frac{r_{nop}}{r_{\lambda S}} \cdot \frac{C_0^2}{V_c^2} \cdot \left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}} \sim 9.123754729 \cdot 10^{13} \text{ cycles of the sun.}$$

we shall define: r_0 ; V_0 ; $\overline{T}_0$; $r_{орб}$; V_c ; $T_{орб}$ for max. over – giant $r_{\lambda S\star} \sim r_{nops}$;

$$r_{nops} = 4.138704314 \cdot 10^{15} см.$$

$r_{0\star} \sim 5.68440597 \cdot 10^{12}$ см ; $V_{0\star} \sim 10683.72155 \frac{см}{sec}$; $\overline{T}_{0\star} \sim 7904346306$ s
$= 250.6451771$ years ;

$r_{орб\star} \sim 3.431093264 \cdot 10^{20}$ см ; $\frac{V_{c\star}}{C_0} \sim 0.102998969$; $V_{c\star} \sim 30673.86565 \frac{км}{sec}$;

$$T_{орб\star} = 7.028196271 \cdot 10^{11} s = 22286.26418 \text{ years ;}$$

Than more radius and accordingly energy of the star, that closer she to centre of the galaxy.

We shall define maximum orbit and accordingly minimum radius of the over-giants and medium stars: $R_\lambda = r_{nos}$;

$$R_\lambda = r_{nos} = 2\pi\gamma \cdot r_{nop} \cdot \frac{C_0^2}{V_c^2} \cdot \left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}} ;\ \ \frac{V_c}{C_0} = \sqrt{2\pi\gamma \cdot \frac{\mathbb{N}_{os}}{\mathbb{N}_{op}}} \cdot \left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{10}} = \left(\frac{T_0}{\overline{\overline{T}}_0}\right)^{\frac{1}{5}} \cdot \left(1 - \frac{r_0^{1/5}}{r_{\lambda S}^{1/5}}\right)^2 ;$$

$$\frac{V_c}{C_0} = 0.031143228 \cdot r_{\lambda S}^{43/850} \cdot \left(1 - \frac{12.57439988}{r_{\lambda S}^{91/850}}\right)^2 = \frac{3.909275257 \cdot 10^{-4}}{r_{\lambda S}^{43/1700}} ;$$

$$r_{\lambda S0} = 2.86064546 \cdot 10^{10} см;$$

$\overline{T}_0 = 1103426.309$ с $= 12.77113784$ суток ; $\frac{V_{c0}}{C_0} = 2.126224994 \cdot 10^{-4}$; V_{c0}
$= 63.32057483 \frac{км}{sec}$;

$r_{orb} = \frac{V_c}{C_0} \cdot r_{nos} = 3.031878054 \cdot 10^{23}$ см ; $T_{orb0} = \frac{2\pi \cdot r_{nos}}{C_0} =$
$= 3.008477372 \cdot 10^{17} s \sim 9.539819168 \left[\begin{matrix}\text{billions} \\ \text{years}\end{matrix}\right]$

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<u>Mechanics of the small stars - pulsars.</u>

Field trigonometric identity of the pulsars:

$$(\cos\alpha)^{\frac{5}{4}} = (\cos\alpha_\gamma)^{\frac{1}{5}};\quad \cos\alpha_\gamma = \frac{V_0\overline{T}_0}{ÇÇ_\gamma T_\gamma};\quad \frac{\overline{T}_0}{T_\gamma} = \tan\alpha_\gamma \gg 1;\quad (\cos\alpha_\gamma)^{\frac{1}{5}}$$
$$= \frac{1}{1+(\tan\alpha_\gamma)^{\frac{1}{5}}} \sim \frac{1}{(\tan\alpha_\gamma)^{\frac{1}{5}}};\rightarrow$$

$$(\cos\alpha_\gamma)^{\frac{1}{5}} \sim \left(\frac{V_0}{Ç_\gamma}\right)^{\frac{1}{10}};\quad (\cos\alpha)^{\frac{5}{4}} = \frac{\alpha^{1/3}\cdot r_e}{\sqrt{r_{nos}\cdot r_{\lambda S}}}\cdot\left(\frac{r_0}{r_{\lambda S}}\right)^{\frac{1}{4}} = \frac{\alpha^{1/3}\cdot r_e\cdot r_0^{1/4}}{\sqrt{r_{nos}}\cdot r_{\lambda S}^{3/4}} = \left(\frac{V_0}{Ç_\gamma}\right)^{\frac{1}{10}};\quad \frac{V_0}{C_0} = \sqrt{\frac{\Upsilon_\star^2}{E_S\cdot r_0}};$$

$$\text{we shall define } V_0;\ r_0\,?\quad V_0 = \frac{\alpha^{5/9}\cdot C_0^{5/6}\cdot Ç_{\gamma nos}^{1/6}}{r_{nos}^{5/6}}\cdot\left(\frac{\Upsilon_\star^2}{E_S}\right)^{5/12}\cdot\frac{r_e^{5/3}}{r_{\lambda S}^{5/4}} = \frac{2.352193663\cdot 10^{18}}{r_{\lambda S}^{31/24}};$$

We shall note that for minimum pulsar with radius:

$$r_{\lambda S\star} = \frac{r_e}{\mathbb{N}_X} = \frac{X^{\frac{1}{4}}}{\mathrm{e}} = 1343077.651\ \text{см};\rightarrow \mathbf{V_{0\star} = 2.85765059\cdot 10^{10}}\ \frac{\text{см}}{\text{sec}};$$

$$r_0 = r_{\lambda S}^{149/60}\cdot 4.27435409\cdot 10^{-15}\text{см};\rightarrow r_{0\star} = 7.062985002\ \text{см};$$

since internal radius of the rotation of the pulsar: $r_0 \le r_{\lambda S}$,

we shall define limiting value of the radius of the pulsar:

$$r_0 = r_{\lambda S} = r_{\lambda S}^{149/60}\cdot 4.27435409\cdot 10^{-15};\rightarrow r_{\lambda S0} = 4.864672387\cdot 10^{9}\ \text{см};$$

$$\text{period of the own rotation of the pulsar: } \overline{T}_0 = \frac{2\pi\alpha\cdot r_0}{V_0} = 3.322379835\cdot 10^{-32}\cdot r_{\lambda S}^{151/40};$$

$$\text{for minimum pulsar: } \overline{T}_{0\star} = 4.518882194\cdot 10^{-9}\ \text{sec};$$

$$\text{For limiting pulsar: } r_{\lambda S}\sim r_e;\ \overline{T}_{0max} = 68349.18711\ \text{sec} = 18.985885531\ \text{hours};$$

$$\overline{T}_{0\star} \le \overline{T}_0 < \overline{T}_{0max};$$

$$\text{Cyclic period of the motion of the pulsar: } T_0 = \frac{2\pi_\gamma\cdot r_{\lambda S}}{C_0} = r_{\lambda S}\cdot 3.269924609\cdot 10^{-15};$$

$$\frac{T_0}{\overline{T}_0} = \frac{9.842115506\cdot 10^{16}}{r_{\lambda S}^{111/40}};\quad \frac{V_0\overline{T}_0}{C_0 T_0} = \frac{2\pi\alpha\cdot r_0}{2\pi_\gamma\cdot r_{\lambda S}} = \frac{\alpha}{\alpha_\mu}\cdot\frac{r_0}{r_{\lambda S}} = r_{\lambda S}^{89/60}\cdot 8.025072938\cdot 10^{-10};$$

Equation of the orbital speed of the pulsars:

$$1-\frac{V_c^{5/4}}{C_0^{5/4}}\cdot\frac{\sqrt{T_0^2\cdot\sqrt{\overline{T}_0}}}{T_0^{5/4}}=\left(\left[\frac{(2\pi\gamma r_0)^{3/4}\cdot(2\pi_\gamma r_0)^{1/4}}{2\pi\cdot r_e}\right]^2\cdot\sqrt{\frac{V_0\overline{T}_0}{C_0T_0}}\right)^{1/5}=\left(\gamma^{\frac{3}{2}}\cdot\sqrt{\frac{\pi_\gamma}{\pi}}\cdot\frac{r_0^2}{r_e^2}\cdot\sqrt{\frac{\alpha\cdot r_0}{\alpha_\mu\cdot r_{\lambda S}}}\right)^{1/5}$$
$$=$$

$$=\gamma^{3/10}\cdot\alpha^{1/10}\cdot\frac{\sqrt{r_0}}{r_e^{2/5}\cdot r_{\lambda S}^{1/10}}=1.042308351\cdot10^{-11}\cdot r_{\lambda S}^{137/120};$$

$$\frac{V_c}{C_0}=\frac{2503.904101}{r_{\lambda S}^{111/200}}\cdot\left(1-1.042308351\cdot10^{-11}\cdot r_{\lambda S}^{137/120}\right)^{4/5};$$

For minimum pulsar: $\frac{V_{c\star}}{C_0}=0.994227255$; $\mathbf{V_{c\star}}=\mathbf{2.960883327\cdot10^{10}}\frac{\text{cm}}{\text{sec}}$;

Minimum pulsar moves per orbit with speed near to world or astronomical speed of the light!

$$r_{orb}=2\pi\gamma\cdot r_{nop}\cdot\frac{C_0}{V_c}\cdot\left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}};\ r_{orb\star}=6.865171708\cdot10^{18}\text{см};$$

$$R_{\lambda\star}=r_{orb\star}\cdot\frac{C_0}{V_{c\star}}=6.905032701\cdot10^{18}\text{ cm}$$

$$T_{орб\star}=\frac{2\pi_\gamma\cdot R_{\lambda\star}}{C_0}=\frac{2\pi_\gamma\cdot r_{orb\star}}{V_{c\star}}=22578.93635\text{ sec}=6.271926764\text{ hours};$$

$$T_{orb}=T_0\cdot N_r;\to2\pi_\gamma\cdot R_\lambda=2\pi_\gamma\cdot r_{\lambda S}\cdot N_r;\quad R_\lambda=r_{\lambda S}\cdot N_r;\quad N_r=\frac{R_\lambda}{r_{\lambda S}}=2\pi\gamma\cdot\frac{r_{nop}}{r_{\lambda S}}\cdot\frac{C_0^2}{V_c^2}\cdot\left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}};$$

$$N_{r\star}=5.1412014\cdot10^{12}\text{ cycles};$$

Maximum radius of the pulsar we shall find from condition:

$$\mathbf{2\pi_\gamma\cdot R_\lambda}=\mathbf{2\pi\cdot r_{nos}};\to R_\lambda=\frac{\pi}{\pi_\gamma}\cdot r_{nos}=2\pi\gamma\cdot r_{nop}\cdot\frac{C_0^2}{V_c^2}\cdot\left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{5}};\quad\frac{V_c}{C_0}=\sqrt{2\pi_\gamma\cdot\gamma\cdot\frac{r_{nop}}{r_{nos}}}\cdot\left(\frac{\overline{T}_0}{T_0}\right)^{\frac{1}{10}}=$$
$$=5.427701656\cdot10^{-9}\cdot r_{\lambda S}^{111/400};$$

$$\frac{2503.904101}{r_{\lambda S}^{111/200}}\cdot\left(1-1.042308351\cdot10^{-11}\cdot r_{\lambda S}^{137/120}\right)^{\frac{4}{5}}=5.427701656\cdot10^{-9}\cdot r_{\lambda S}^{111/400};$$

$$\mathbf{r_{\lambda Scrit}}=\mathbf{4.161628778\cdot10^{9}}\text{ см}!$$

$\left(\frac{V_c}{C_0}\right)_{crit}=2.5349041\cdot10^{-6}$; $V_{ccrit}=754.913468\ \frac{\text{м}}{\text{sec}}$; $r_{orbcr}=\frac{V_c}{C_0}\cdot\frac{\pi}{\pi_\gamma}\cdot r_{nos}=2.33222557\cdot10^{26}$cm

$$T_{orbcrit}=\frac{2\pi_\gamma\cdot R_\lambda}{C_0}=\frac{2\pi_\gamma\cdot r_{orb}}{V_c}=\frac{2\pi\cdot r_{nos}}{C_0}=3.008477372\cdot10^{17}\text{sec};$$

$$\bar{T}_{0crit} = 68260.32996 \text{ sec} = 18.96120277 \text{ hours};$$

$$R_\lambda = \frac{\pi}{\pi_\gamma} \cdot r_{nos}; \quad N_{rcrit} = \frac{R_\lambda}{r_{\lambda S}} = \frac{\pi}{\pi_\gamma} \cdot \frac{r_{nos}}{r_{\lambda S}} = 2.210780736 \cdot 10^{22} \text{ cycles of the rotation.}$$