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Gravitational Radius of the Stars

Key words: on the basic equation of gravitation, an interior structure of stars, gravitational radius of a star, an expansion of a star.

Annotation: The model of an interior structure of stars is based on the equation of the moment of energy of an interior gravitational field of a star and on the basic equation of gravitation from the gravitational field theory. From this set of equations we define energy of an interior gravitational field and gravitational radius of a star. Difference between natural and gravitational in star radiuses the substance in the form of particles defines a stratum width of the star.inside this stratum moves with a relativistic velocity, forming plasma making planetary energy of a star. Or the planetary substance in the form of plasma rotates round the centre of a star with gravitational radius with a velocity of light. Interior gravitational force of a star huge on magnitude but short-range within star radius. At limiting expansion of a star in the end of her life planetary energy of a star remains, and its energy of an interior gravitational field aspires to a limit equal to potential gravitational energy of planetary-orbital space - energy of our Universe. From these conditions the limiting radius of expansion of a star in the end of her life is defined. The model of an electromagnetic star or fireball is constructed on the same principles of the theory of gravitation as a star.

At the beginning initially theme shall enter notions and their indications.

r_{g*} → gravitational radius of the star ;

r_g → variable radius of the eta – muons of the internal gravitational field ;

E_g → density of the energy of the internal gravifield of the star ;

E_{gs} → energy of the internal gravifield of the star ;

E_S
→ energy of the star or otherwise energy of the external gravifield of the interaction of the star ;

$E_{\mu nops} = \dfrac{2\pi\alpha^{5/8}\cdot\gamma^{3/8}}{\Upsilon^2_{nops}}\cdot\beta_\gamma\mathbb{N}_{ops}$; → full potential energy of the planetary gravifield of the star;

$E_{\mu nop} = \dfrac{2\pi\gamma}{\Upsilon^2_{nop}}\cdot\beta_\gamma\mathbb{N}_{op}$; → full potential energy of the galactic gravifield of the star ;

$\Psi_{\sqrt{\lambda}}$ → field psi for elementary particles ;

$\dot{\Psi}_{\sqrt{\lambda}}$ и $\dot{\Psi}_{\lambda}$ → field and not field psi from theory of the piece of the matter ;

In this theme use two remarkable cosmological formulas expressing interconnection the energy of the elementary particles through radiuses of the luminary or, that same through energy of the luminary their generating:

$$\beta_{S_{min}} = \sqrt{\frac{\gamma}{\alpha} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2}} \cdot \sqrt{\frac{r_S}{r_{nop}}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2 \qquad \beta_{S_{max}} = \sqrt{\frac{\gamma}{\alpha} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2}} \cdot \sqrt{\frac{r_S}{r_{nop}}} \cdot \left(\frac{r_S}{r_\gamma}\right)^2$$

Stars in universe subdivide on three groups – small (pulsar), medium and big (supergiant). Small stars for their sizes are located within:

$$\frac{r_e}{\mathbb{N}_X} \le r_S < r_e; \quad \text{where: } \frac{r_e}{\mathbb{N}_X} = \frac{X^{1/4}}{e} = 1.343077651 \cdot 10^6 \text{см}; \quad r_e = \frac{1}{e} = 4.163063153 \cdot 10^9 \text{ см};$$

$$\text{medium stars:} \rightarrow \quad r_e < r_S \le r_e \cdot \mathbb{N}_X; \quad \text{where: } r_e \cdot \mathbb{N}_X = \frac{1}{e \cdot X^{1/4}} = 1.290401549 \cdot 10^{13} \text{см};$$

$$\text{gigantic stars:} \rightarrow \quad r_e \cdot \mathbb{N}_X < r_S \le r_{S_\star}; \quad \text{where: } r_{S_\star} = 4.023996954 \cdot 10^{15} \text{см};$$

Formulas for energy of the elementary particles $\left(\beta_{S_{min}} \text{ and } \beta_{S_{max}}\right)$ pertain to medium and small stars. For medium stars applicable both formulas. Now we shall explain them. Formula for $\beta_{S_{min}} \rightarrow$ defines minimum

energy of the elementary particle, generated star with radius r_S.

Formula for $\beta_{S_{max}}$ defines maximum energy rest of the maximum atom for given star.

$$\beta_{S_{max}} = \beta_{S_{min}} \cdot \left(\frac{r_S}{r_e}\right)^2; \rightarrow \quad \text{but nor there is this table of the Mendeleev!}$$

$$\beta_{S_{min}} \rightarrow \text{minimum elementary particle, that is to say its proton for given star};$$

$$\beta_{S_{max}} \rightarrow \text{maximum energy rest of the most heavy stable atom for given star};$$

Resume. In world of the medium stars there is such star, for each of which exists its table of the Mendeleev, that is to say its chemistry atoms and molecules. So, medium stars responsible for making the planetary creation. But there where there is planets, possible and reason!

We shall use formulas for $\beta_{S_{min}}$ и $\beta_{S_{max}}$ for our star - Sun.

We know radius of the sun in own reference system:$\rightarrow r_S = 7.173529642 \cdot 10^{10}$см. but some transformation shall initially produce at the beginning for Euclid $\leftrightarrow \gamma$ gamma space – energy.

Radius of the sun for own watcher and watcher with standpoints of the earth differ on value of the factor of the geometry – γ. Both watchers measuring equally wavelength a sun:

$$2\pi \cdot r_S = 2\pi\gamma \cdot \bar{r}_S; \rightarrow \bar{r}_S = \frac{r_S}{\gamma} = \frac{7.173529642 \cdot 10^{10}}{\gamma} = 6.95989998 \cdot 10^{10} \text{ см};$$

<u>Transformation for speed of the light.</u>

$$C_0 = \frac{1}{X^{3/4}}; \rightarrow \text{world speed of the light};$$

$Ç_\gamma$ → speed of the light for terrestrial watcher or speed of the eta – muon – photon;

r_{S_*}; r_S → radiuses of the sun accordingly before and after the forming the planetary system ;

$\frac{r_{S_*}}{r_S} = 1.051419306 = const$ → for all planet – forming stars ;

$r_{nops} = \frac{1}{\beta_\gamma \mathbb{N}_{ops}}$; → orbital radius of the planetary system of the star ;

$r_{gs} = r_S \cdot 0.982746232$; → gravitational radius of our sun ;

Main trigonometric identity space-energy, in which exists photon of the light;

$$\sqrt{\cos\alpha} = (\cos\alpha_\gamma)^{5/4};$$

$$Ç_\gamma T_\gamma = \gamma \cdot C_0 T_0 \,; \rightarrow \frac{T_\gamma}{T_0} = \tan\alpha_\gamma = \frac{\gamma \cdot C_0}{Ç_\gamma} \,; \quad (\cos\alpha_\gamma)^{5/4} = \frac{1}{1 + (\tan\alpha_\gamma)^{5/4}} = \frac{1}{1 + \left(\frac{T_\gamma}{T_0}\right)^{5/4}} \,;$$

$$\sqrt{\cos\alpha} = \left[\left(\frac{2\pi\sigma^{2/3} \cdot \alpha^{1/3}}{2\pi \cdot \gamma^{5/11}} \cdot \frac{r_{gs}}{\sqrt{r_{S_*} \cdot r_S}}\right)^2 \cdot \sqrt{\frac{2\pi_\gamma \cdot r_{gs_{max}}}{2\pi \cdot r_{nops}}}\right]^{1/5} =$$

$$= \frac{\sigma^{4/15} \cdot \alpha^{2/15} \cdot \alpha_\mu^{1/10}}{\gamma^{2/11}} \cdot \left(\frac{r_{gs}}{\sqrt{r_{S_*} \cdot r_S}}\right)^{2/5} \cdot \left(\frac{r_{gs_{max}}}{r_{nops}}\right)^{1/10} ;$$

$$\sqrt{\cos\alpha} = \frac{\sigma^{4/15} \cdot \alpha^{2/15} \cdot \alpha_\mu^{1/10}}{\gamma^{2/11}} \cdot \left(\frac{r_{gs}}{\sqrt{r_{S_*} \cdot r_S}}\right)^{2/5} \cdot \left(\frac{r_{gs_{max}}}{r_{nops}}\right)^{1/10} = (\cos\alpha_\gamma)^{5/4} = \frac{1}{1 + \left(\frac{T_\gamma}{T_0}\right)^{5/4}} \,;$$

$$\frac{T_\gamma}{T_0} = \frac{\gamma \cdot C_0}{Ç_\gamma} = \left[\frac{\gamma^{2/11}}{\sigma^{4/15} \cdot \alpha^{2/15} \cdot \alpha_\mu^{1/10}} \cdot \left(\frac{r_{nops}}{r_{gs_{max}}}\right)^{1/10} \cdot \left(\frac{\sqrt{r_{S_*} \cdot r_S}}{r_{gs}}\right)^{2/5} - 1\right]^{4/5} ;$$

$$\boxed{Ç_\gamma = \overline{C_0} = \frac{\gamma \cdot C_0}{\left[\frac{\gamma^{2/11}}{\alpha_\mu^{1/10} \cdot \sigma^{4/15} \cdot \alpha^{2/15}} \cdot \left(\sqrt{\frac{r_{nops}}{r_{gs_{max}}} \cdot \frac{r_{S_*} \cdot r_S}{r_{gs}^2}}\right)^{1/5} - 1\right]^{4/5}} = C_0 \cdot 1.006669646 = 2.9979377 \cdot 10^{10}\ \frac{\text{см}}{\text{sec}}}$$

We shall remind that r_{S_*} → radius initial sun. After eruption of the planet-forming matter radius sun decreased before present sizes → r_S . Comprehensible sense of multiplying → $r_{S_*} \cdot r_S$ in given transformation. Was not planetary formation, was not given transformation.

Transformation for protons.

Remarkable characteristic of the universe is that energy of the matter defines space of the universe!

Energy of the elementary particle β → there is radius of the element space universe $r = \beta$. length of the space-energy for given elementary particle there is value constant for all field reference system.

$$2\pi\cdot\Psi_{\sqrt{\beta_P}}\cdot\overline{\beta_P} = 2\pi\gamma\cdot\Psi_{\sqrt{\beta_P}}\cdot\beta_P + 2\pi\gamma\cdot\Psi_{\sqrt{\beta_P}}\cdot\beta_e\,;\to \boxed{\overline{\beta_P} = \gamma\cdot(\beta_P+\beta_e) = \gamma\cdot\beta_P\cdot\left(1+\frac{\beta_e}{\beta_P}\right)}$$

$\overline{\beta_P}$ → energy rest proton for terrestrial watcher ;

$\beta_P;\ \beta_e$ → astronomical energies rest proton and electron ;

$$\beta_P = \frac{1}{\gamma^{1/10}}\cdot\left(\frac{\sigma}{\alpha}\right)^{2/5}\cdot\alpha_\mu^{3/5} = 1.457645097\cdot10^{-3}\text{erg}\,;\quad \beta_e = \frac{\alpha_\mu^{5/4}}{\sigma^{1/8}} = 8.203731016\cdot10^{-7}\text{erg}\,;$$

$$\overline{\beta_P} = \gamma\cdot(\beta_P+\beta_e) = 1.503232127\cdot10^{-3}\text{erg}\,;\quad \overline{m_P} = \frac{\overline{\beta_P}}{C_0^2} = 1.672556671\cdot10^{-24}\ \text{gr}\,;$$

<u>Transformation for electron:</u>

Astronomical electron with energy β_e can fly before us only from distant stars with radius:

$r_S = 3688.295174$ км. On sun and in terrestrial laboratory electron is radiated nucleuses atoms or nucleons. We shall define energy and mass of the electron from equation сохранения conservations proton and electronic moments of the energy.

$$\boxed{2\pi_\gamma\cdot\Psi^2_{\sqrt{\overline{\beta_e}}}\cdot\overline{\beta_P}^2 = 2\pi\alpha^{1/5}\cdot\sqrt{\Psi_{\beta_e}\cdot\beta_P}}\,;\to\frac{2\pi_\gamma\cdot\overline{\beta_P}^2}{\overline{\beta_e}^{7/4}} = \frac{2\pi\alpha^{1/5}\cdot\sqrt{\beta_P}}{\beta_e^{1/4}}\,;\to\overline{\beta_e} = \frac{\alpha_\mu^{4/7}}{\alpha^{4/35}}\cdot\frac{\overline{\beta_P}^{8/7}}{\beta_P^{2/7}}\cdot\beta_e^{1/7}\,;$$

$$\overline{\beta_P} = \gamma\cdot\beta_P\cdot\left(1+\frac{\beta_e}{\beta_P}\right);\to\overline{\beta_e} = \frac{\alpha_\mu^{4/7}\cdot\gamma^{8/7}}{\alpha^{4/35}}\cdot\beta_P^{6/7}\cdot\beta_e^{1/7}\cdot\left(1+\frac{\beta_e}{\beta_P}\right)^{8/7} = 8.190014297\cdot10^{-7}\ \text{erg}\,;$$

$$\overline{m_e} = \frac{\overline{\beta_e}}{\overline{C_0}^2} = 9.112540107\cdot10^{-28}\text{gr}\,;$$

<u>Transformation for photons:</u>

$$\boxed{2\pi_\gamma\cdot\Psi^2_{\sqrt{\overline{\beta_e}}}\cdot\overline{\beta_P}\cdot\bar\beta = 2\pi\alpha^{1/5}\cdot\frac{\sqrt{\Psi_{\beta_e}\cdot\beta_P}}{\beta_P+\beta_e}\cdot\beta}\,;\to\bar\beta = \beta\cdot\frac{\alpha^{1/5}}{\alpha_\mu}\cdot\frac{\sqrt{\Psi_{\beta_e}}}{\Psi^2_{\sqrt{\overline{\beta_e}}}}\cdot\frac{1}{\overline{\beta_P}\cdot\sqrt{\beta_P}\cdot\left(1+\frac{\beta_e}{\beta_P}\right)}\,;$$

$$\boxed{\bar\beta = \beta\cdot\frac{\alpha^{1/5}}{\gamma\cdot\alpha_\mu}\cdot\frac{\overline{\beta_e}^{7/4}}{\beta_e^{1/4}}\cdot\frac{1}{\beta_P^{3/2}\cdot\left(1+\frac{\beta_e}{\beta_P}\right)^2} = \beta\cdot1.030694355 = \beta\cdot\gamma\,!}$$

$\bar\beta = \gamma\cdot\beta\,;\to\overline{h_P}\cdot\bar V = \gamma\cdot h_p\cdot V\,;$ in photons transformation constant Plank is saved →

$$h_P = \overline{h_P}\,;\to\bar V = \gamma\cdot V\,;\quad\frac{1}{\bar{\bar T}} = \frac{\gamma}{T}\,;\quad T = \gamma\cdot\bar T\,;\quad\lambda = C_0T\,;\to\frac{\lambda}{C_0} = \gamma\cdot\frac{\bar\lambda}{\overline{C_0}}\,;\quad\bar\lambda = \lambda\cdot\frac{\overline{C_0}}{\gamma\cdot C_0}\,;$$

$$\bar{\lambda} = \lambda \cdot \frac{\overline{C_0}}{\gamma \cdot C_0} = \frac{\lambda}{\left[\frac{\gamma^{2/11}}{\alpha_\mu^{1/10} \cdot \sigma^{4/15} \cdot \alpha^{2/15}} \cdot \left(\sqrt{\frac{r_{nops}}{r_{gs_{max}}}} \cdot \frac{r_{s_*} \cdot r_s}{r_{gs}^2}\right)^{1/5} - 1\right]^{4/5}} ;$$

Now we shall go to determination of the energy of the internal gravitational field of the star and its radius.

Composition equation for moments of the energy of the internal gravitational field of the star:

$$\boxed{2\pi \cdot \Upsilon_g^2 \cdot E_g \cdot r_g \cdot E_S \cdot r_{nops} = 2\pi\gamma \cdot \sqrt{\ddot{\Psi}_{\frac{1}{\beta_\gamma}} \cdot E_{\mu nop}}} ;$$

Υ_g^2 → gravitational moment of the energy of the internal gravitational field of the star ;

E_g → density of the energy of the internal gravitational field of the star ;

r_g → radius of the eta – muon of the interaction internal gravitational field of the star ;

$E_{\mu nop}$ → full potential energy of the galactic gravitational field of the st
E_S → energy of the star or its energy of the external gravitational field of the interaction;

$\ddot{\Psi}_{\frac{1}{\beta_\gamma}}$ → square moment of the energy for maximum energy of the piece of the matter $E = \frac{1}{\beta_\gamma}$;

We shall recall theory of the gravitation:

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

$$E_{\mu nop} = \mathbb{N}_{\star nop} \cdot \beta_\gamma \mathbb{N}_{op} = \frac{2\pi\gamma}{\Upsilon_{nop}^2} \cdot \beta_\gamma \mathbb{N}_{op} = \frac{1}{\mathbb{N}_{op}} \cdot E_\mu \cdot \frac{Ç_{\gamma nop}^2}{Ç_\star^2} = \frac{2\pi\gamma \cdot C_0^2 \cdot Ç_0^2}{\mathbb{G} \cdot \beta_\gamma \mathbb{N}_{op}} = 6.816633029 \cdot 10^{95}\ \text{erg} ;$$

$$Ç_{\gamma nop} = \frac{Ç_\star \cdot Ç_o \cdot C_0 \cdot \sqrt{2\pi\gamma}}{\sqrt{\mathbb{G} \cdot \beta_\gamma \cdot E_\mu}} = \frac{Ç_0^2 \cdot C_0 \cdot \sqrt{2\pi\gamma}}{\sqrt{\mathbb{G}} \cdot \beta_\gamma^{2/5}} = 2.321436795 \cdot 10^{78}\ \frac{\text{см}}{\text{sec}} ;$$

$$\mathbb{G} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot r_{nops} \cdot C_0^4}{\frac{1}{\mathbb{N}_{ops}} \cdot E_\mu \cdot \frac{Ç_{\gamma nops}^2}{Ç_\star^2}} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8}}{\mathbb{N}_{\star nops}} \cdot \frac{r_{nops} \cdot C_0^4}{\beta_\gamma \mathbb{N}_{ops}} = \Upsilon_{nops}^2 \cdot \frac{r_{nops} \cdot C_0^4}{\beta_\gamma \mathbb{N}_{ops}} ;\ \Upsilon_{nops}^2 = \frac{2\pi\alpha^{\frac{5}{8}} \cdot \gamma^{\frac{3}{8}}}{\mathbb{N}_{\star nops}} = \frac{\mathbb{G} \cdot (\beta_\gamma \mathbb{N}_{ops})^2}{C_0^4} ;$$

$$E_{\mu nops} = \mathbb{N}_{\star nops} \cdot \beta_\gamma \mathbb{N}_{ops} = \frac{2\pi\alpha^{\frac{5}{8}} \cdot \gamma^{\frac{3}{8}}}{\Upsilon^2_{nops}} \cdot \beta_\gamma \mathbb{N}_{ops} = \frac{1}{\mathbb{N}_{ops}} \cdot E_\mu \cdot \frac{Ç^2_{\gamma nops}}{Ç^2_\star} = \frac{2\pi\alpha^{\frac{5}{8}} \cdot \gamma^{\frac{3}{8}} \cdot C_0^4}{\mathbb{G} \cdot \beta_\gamma \mathbb{N}_{ops}} =$$
$$= 6.043718679 \cdot 10^{65} \text{erg}$$

$$Ç_{\gamma nops} = \frac{Ç_\star \cdot C_0^2 \cdot \sqrt{2\pi\alpha^{5/8} \cdot \gamma^{3/8}}}{\sqrt{\mathbb{G} \cdot \beta_\gamma \cdot E_\mu}} = \frac{Ç_0 \cdot C_0^2 \cdot \sqrt{2\pi\alpha^{\frac{5}{8}} \cdot \gamma^{\frac{3}{8}}}}{\sqrt{\mathbb{G}} \cdot \beta_\gamma^{2/5}} = 3.478293792 \cdot 10^{64} \frac{\text{см}}{\text{sec}} ;$$

$$\mathbb{G} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot r_g \cdot C_0^4}{\frac{r_g}{r_\gamma} \cdot E_\mu \cdot \frac{Ç_g^2}{Ç_\star^2}} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8}}{\mathbb{N}_{g\star nops}} \cdot \frac{r_g \cdot C_0^4}{(\beta_\gamma)} = \Upsilon_g^2 \cdot \frac{r_g \cdot C_0^4}{(\beta_\gamma)} ;\ r_g = \frac{1}{(\beta_\gamma)};$$

$$\boxed{\Upsilon_g^2 = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8}}{\mathbb{N}_{g\star nops}} = \frac{\mathbb{G}}{r_g^2 \cdot C_0^4}}$$

$$E_{g_{nops}} = \mathbb{N}_{g\star nops} \cdot (\beta_\gamma) = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8}}{\Upsilon_g^2} \cdot (\beta_\gamma) = \frac{r_g}{r_\gamma} \cdot E_\mu \cdot \frac{Ç_g^2}{Ç_\star^2} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot r_g \cdot C_0^4}{\mathbb{G}} ;$$

$$Ç_g = \frac{Ç_\star \cdot C_0^2 \cdot \sqrt{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot r_\gamma}}{\sqrt{\mathbb{G} \cdot E_\mu}} = Ç_{\gamma nops} = 3.478293792 \cdot 10^{64} \frac{\text{см}}{\text{sec}} ;$$

In limit when shaping the internal gravitational field of the star $\rightarrow r_g = \frac{1}{(\beta_\gamma)} = r_S$; then:

$$E_{g_{nops}} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot r_S \cdot C_0^4}{\mathbb{G}} ; \rightarrow \left| \begin{matrix} \text{full potential energy of the internal gravifield} \\ \text{accumulated into black hole;} \end{matrix} \right|$$

We shall convert and shall solve equation of the moments of the energy of the internal gravitational field of the star:

$$\Upsilon_g^2 \cdot E_g \cdot r_g \cdot E_S \cdot r_{nops} = \gamma \cdot \sqrt{\ddot{\Psi}_{\frac{1}{\beta_\gamma}}} \cdot \sqrt{E_{\mu nop}} ;\ \frac{\mathbb{G}}{C_0^4 \cdot r_g^2} \cdot E_g \cdot r_g \cdot E_S \cdot r_{nops}$$
$$= \gamma \cdot \sqrt{\ddot{\Psi}_{\frac{1}{\beta_\gamma}}} \cdot \frac{\sqrt{2\pi\gamma} \cdot C_0 \cdot Ç_0}{\sqrt{\mathbb{G} \cdot \beta_\gamma \mathbb{N}_{op}}};$$

$$E_g = r_g \cdot \frac{\gamma \cdot \sqrt{2\pi\gamma \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}}} \cdot C_0^5 \cdot Ç_0 \cdot \beta_\gamma \mathbb{N}_{ops}}{E_S \cdot \mathbb{G}^{3/2} \cdot \sqrt{\beta_\gamma \mathbb{N}_{op}}} ;\quad M_g = \frac{E_g}{C_0^2} = r_g \cdot \frac{\gamma \cdot \sqrt{2\pi\gamma \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}}} \cdot C_0^3 \cdot Ç_0 \cdot \beta_\gamma \mathbb{N}_{ops}}{E_S \cdot \mathbb{G}^{3/2} \cdot \sqrt{\beta_\gamma \mathbb{N}_{op}}} ;$$

$$\mathbb{G} \cdot M_g \cdot dM_g = \frac{2\pi \cdot \gamma^3 \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}} \cdot C_0^6 \cdot Ç_0^2 \cdot (\beta_\gamma \mathbb{N}_{ops})^2}{E_S^2 \cdot \mathbb{G}^2 \cdot \beta_\gamma \mathbb{N}_{op}} \cdot r_g \cdot dr_g ;\quad E_{gs}$$
$$= \int_{r_\mu}^{r_S} 2\mathbb{G} \cdot M_g \cdot dM_g \cdot \left(\frac{1}{r_\mu} - \frac{1}{r_g}\right) ;$$

$r_\mu = \Psi^2_{\sqrt{\beta_S}} \cdot \beta_\gamma \mathbb{N}_{ops}$; → depth of the penetration of the internal gravitational field ;

$$E_{gs} = \int_{r_\mu}^{r_S} 2 \cdot \frac{2\pi \cdot \gamma^3 \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}} \cdot C_0^6 \cdot \varsigma_0^2 \cdot (\beta_\gamma \mathbb{N}_{ops})^2}{E_S^2 \cdot \mathbb{G}^2 \cdot \beta_\gamma \mathbb{N}_{op}} \cdot \left(\frac{r_g \cdot dr_g}{\Psi^2_{\sqrt{\beta_S}} \cdot \beta_\gamma \mathbb{N}_{ops}} - dr_g \right);$$

$$E_{gs} \sim 2 \cdot \frac{2\pi \cdot \gamma^3 \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}} \cdot C_0^6 \cdot \varsigma_0^2 \cdot (\beta_\gamma \mathbb{N}_{ops})^2}{E_S^2 \cdot \mathbb{G}^2 \cdot \beta_\gamma \mathbb{N}_{op}} \cdot \frac{1}{2} \cdot \frac{r_S^2}{\Psi^2_{\sqrt{\beta_S}} \cdot \beta_\gamma \mathbb{N}_{ops}} = \frac{2\pi \cdot \gamma^3 \cdot \ddot{\Psi}_{\frac{1}{\beta_\gamma}} \cdot C_0^6 \cdot \varsigma_0^2 \cdot \mathbb{N}_{ops} \cdot r_S^2}{\mathbb{G}^2 \cdot \mathbb{N}_{op} \cdot \Psi^2_{\sqrt{\beta_S}} \cdot E_S^2};$$

We shall enter input:

$$E_S = \frac{\gamma^2}{\sqrt{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_S}{r_{nops}}}; \quad \Psi^2_{\sqrt{\beta_S}} = \frac{4.993310554 \cdot 10^{-17}}{\beta_S^{7/4}}; \quad \beta_S$$

$$= \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_S}{r_{nop}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2};$$

$$\Psi^2_{\sqrt{\beta_S}} \cdot E_S^2 = 6.268824378 \cdot 10^{95} \cdot r_S^{1/8}; \quad \sqrt{\ddot{\Psi}_{\frac{1}{\beta_\gamma}}} = 4.718190485 \cdot 10^{-11} \cdot \left(\frac{1}{\beta_\gamma}\right)^{3/8} = 5688.411097;$$

We shall substitute all importance of the values in equation for E_{gs}:

$$\boxed{E_{gs} = 1.064577845 \cdot 10^{41} \cdot r_S^{15/8}}$$

for our sun with own radius $r_S = 7.173529642 \cdot 10^{10}$ см; → $E_{gs} = 2.40811158 \cdot 10^{61}$ erg ;

for maximum star from group of the medium stars with radius: $r_S = r_e \cdot \mathbb{N}_X = \frac{1}{e \cdot X^{1/4}} =$

$= 1.290401549 \cdot 10^{13}$

$$E_{gs} = 4.071801197 \cdot 10^{65} \text{ erg};$$

Now shall define gravitational energy of the internal gravitational field of the star E_{gs} through law of the conservation of the energy, which defines stability of the star at time. Whole energy radiated with surfaces of the internal gravitational field in form of the material particles, having reached external surface of the star, returns in field back.

Particle loses whole its energy, stops its existence that is to say is split on eta-muons of the gravitational field and thereby forms united integer with energy of the internal gravitational field of the star. Internal gravitational power enormous in size, but short action within radius of the star $r_S = \frac{1}{(\beta_\gamma)}$;

$$2\mathbb{G} \cdot M_{gs} \cdot m \cdot \left(\frac{1}{r_{gs}} - \frac{1}{r_S}\right) = m \cdot C_0^2; \quad 2\mathbb{G} \cdot \frac{E_{gs}}{C_0^2} \cdot \left(\frac{1}{r_{gs}} - \frac{1}{r_S}\right) = C_0^2; \quad \boxed{E_{gs} = \frac{C_0^4}{2\mathbb{G}} \cdot \frac{r_S}{\frac{r_S}{r_{gs}} - 1}};$$

r_{gs} → gravitational radius of the star ; now we can define this radius:

$$E_{gs} = \frac{C_0^4}{2\mathbb{G}} \cdot \frac{r_s}{\frac{r_s}{r_{gs}} - 1} = 5.893676162 \cdot 10^{48} \cdot \frac{r_s}{\frac{r_s}{r_{gs}} - 1} = 1.064577845 \cdot 10^{41} \cdot r_s^{15/8};$$

$$\frac{r_s}{r_{gs}} - 1 = \frac{55361627.05}{r_s^{7/8}}; \rightarrow \boxed{r_{gs} = \frac{r_s}{1 + \frac{55361627.05}{r_s^{7/8}}}}$$

shall define gravitational radius of the sun: $r_s = 7.173529642 \cdot 10^{10}$ см ;

$$r_{gs} = r_s \cdot 0.982746232 = 7.049759228 \cdot 10^{10} \text{ см};$$

Width layer between radius and gravitational radius of the star:

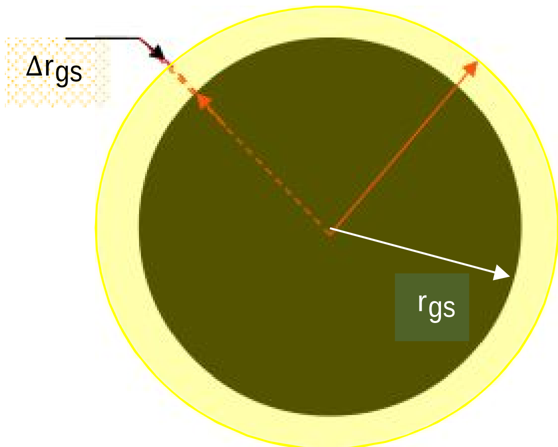
$$\Delta r_{gs} = r_s - r_{gs} = r_s \cdot (1 - 0.982746232) = r_s \cdot 0.017253768 = 1237704162 \text{ см} =$$
$$= 12377.04162 \text{ км};$$

$$\boxed{\Delta r_{gs} = r_s - r_{gs} = \frac{55361627.05 \cdot r_s^{1/8}}{1 + \frac{55361627.05}{r_s^{7/8}}}}$$

Inwardly of this layer particles move with relative speeds, forming plasma- forming whole planetary energy of the star.

$$E_{sp} = \frac{\gamma^2}{\sqrt{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_{s_*}}{r_{nop}}}; \text{ for sun: } E_{sp} = 1.135565969 \cdot 10^{53} \text{erg}; \ M_{sp} = \frac{E_{sp}}{C_0^2} =$$
$$= 1.280386568 \cdot 10^{32} \text{gr};$$

$$\rho_{sp} = \frac{M_{sp}}{\frac{4}{3}\pi \cdot \left(r_s^3 - r_{gs}^3\right)} = 1.672658796 \frac{\text{gr}}{\text{см}^3};$$



We shall calculate density of the internal gravifield of the star:

$$\rho_{gs} = \frac{E_{gs}}{\frac{4}{3}\pi \cdot C_0^2 \cdot r_{gs}^3} = 18500943.73 \frac{\text{gr}}{\text{см}^3} = 18.50094373 \frac{\text{тон}}{\text{см}^3};$$

Fantastic density of the matter of the internal gravifield of the sun.

Will calculate energy and gravitational radius of the internal gravitational field for small stars – *pulsars.*

In model only one change : $\beta_{s_{max}} = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_s}{r_{nop}}} \cdot \left(\frac{r_s}{r_\gamma}\right)^2;$

$$E_{gs} = 1.064577845 \cdot 10^{41} \cdot r_s^{15/8} \cdot \left(\frac{r_s}{r_e}\right)^{7/2} = 2.286819711 \cdot 10^7 \cdot r_s^{43/8}\ \text{erg};$$

for minimum pulsar: $r_s = \frac{r_e}{\mathbb{N}_X} = \frac{X^{1/4}}{\mathrm{e}} = 1.343077651 \cdot 10^6$ см; $\rightarrow E_{gs} = 1.985068328 \cdot 10^{40}$ эрг

$$E_{gs} = \frac{C_0^4}{2\mathbb{G}} \cdot \frac{r_s}{\frac{r_s}{r_{gs}} - 1} = 5.893676162 \cdot 10^{48} \cdot \frac{r_s}{\frac{r_s}{r_{gs}} - 1} = 2.286819711 \cdot 10^7 \cdot r_s^{43/8};$$

$$r_{gs} = \frac{r_s}{1 + \frac{2.577236908 \cdot 10^{41}}{r_s^{35/8}}}$$

for minimum pulsar: $r_{gs} = \frac{r_e}{\mathbb{N}_X} \cdot 2.507772112 \cdot 10^{-15} = 3.368132678 \cdot 10^{-9}$ см;

for maximum pulsar: $r_s \sim r_e; \rightarrow r_{gs} \sim r_e \cdot 0.825120185$ см;

planetary energy of the minimum pulsar: $E_{sp_*} = \frac{\gamma^2}{\sqrt{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_{s_*}}{r_{nop}}} = 4.79191019 \cdot 10^{50}$ erg

Density of the planetary matter of the minimum pulsar in euclid space-energy:

$$\rho_{sp_*} = \frac{E_{sp_*}}{\frac{4}{3}\pi \cdot C_0^2 \cdot r_{s_*}^3} = 5.324090547 \cdot 10^{10}\ \frac{\text{gr}}{\text{см}^3};$$

Density of the gravitational matter of the internal gravitational field of the minimum pulsar:

$$\rho_{gs_*} = \frac{E_{gs}}{\frac{4}{3}\pi \cdot C_0^2 \cdot r_{gs}^3} = 1.39845346 \cdot 10^{44}\ \frac{\text{gr}}{\text{см}^3};$$

Energy rest of the particles composing planetary energy of the minimum pulsar;

$$\beta_{s_*} = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_{s_*}}{r_{nop}}} \cdot \left(\frac{r_{s_*}}{r_\gamma}\right)^2 = 6.564475663 \cdot 10^{-13}\text{erg}; \quad m_{s_*} = \frac{\beta_{s_*}}{C_0^2} =$$
$$= 7.401654057 \cdot 10^{-34}\text{gr};$$

Planetary energy in form of the plasma revolves around centre of the star with gravitational radius at the speed of light. We shall define this speed.

$$\frac{\Upsilon_{gs}^2 \cdot \frac{E_{gs} \cdot E_{sp}}{(\beta_\gamma) \cdot \beta_\gamma \mathbb{N}_{ops}}}{r_{gs}^2} = \frac{E_{sp} \cdot \frac{V_c^2}{C_0^2}}{r_{gs} \cdot \sqrt{1 - \frac{V_c^2}{C_0^2}}}$$

$$\Upsilon_{gs}^2 = \frac{\mathbb{G}}{C_0^4 \cdot r_S^2};$$

→ gravitational moment of the energy of the internal gravitational field of the star ;

$(\beta_\gamma) = \frac{1}{r_S}$; → eta – muon of the interaction of the internal gravitational field of the star ;

$E = \frac{E_0}{\sqrt{1 - \frac{V_c^2}{C_0^2}}}$; → classical transformation of the Einstein for ″ piece of the matter″

$$\frac{\Upsilon_{gs}^2}{r_{gs}} \cdot E_{gs} \cdot r_S \cdot r_{nops} = \frac{\frac{V_c^2}{C_0^2}}{\sqrt{1 - \frac{V_c^2}{C_0^2}}}; \rightarrow \frac{\mathbb{G} \cdot r_{nops}}{C_0^4} \cdot \frac{E_{gs}}{r_S \cdot r_{gs}} = \frac{\frac{V_c^2}{C_0^2}}{\sqrt{1 - \frac{V_c^2}{C_0^2}}}$$; for minimum pulsar

$$: \frac{\frac{V_c^2}{C_0^2}}{\sqrt{1 - \frac{V_c^2}{C_0^2}}} == 1540753921;$$

$$\frac{V_c}{C_0} \sim 1 ; \text{or } \frac{V_c}{C_0} = 0.999999999999999999.$$

Suggestion? Over-giants are formed from medium stars. Moreover planetary energy of the star is saved and is accordingly saved minimum energy of the elementary particle generated by her:

$$\beta_S = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^2} \cdot \sqrt{\frac{r_S}{r_{nop}}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2 = \text{const};$$

We shall expect that under limiting expansion of the medium star its gravitational energy of the internal gravitational field go for limit of the equal full potential energy of the planetary gravitational field of the star:

$$E_{gs} = E_{\mu nops} = \frac{2\pi\alpha^{5/8} \cdot \gamma^{3/8} \cdot C_0^4}{\mathbb{G} \cdot \beta_\gamma \mathbb{N}_{ops}} = 6.043718679 \cdot 10^{65} \text{ erg};$$

then: $E_{\mu nops} = 1.064577845 \cdot 10^{41} \cdot r_S^{7/8} \cdot r_{gs_{max}}; \rightarrow$ $\boxed{r_{gs_{max}} = \frac{5.677103565 \cdot 10^{24}}{r_S^{7/8}}}$

if our sun has an own radius : $r_S = 7.173529642 \cdot 10^{10}$ см, that limiting expansion will form

$$r_{gs_{max}} = 1.800364877 \cdot 10^{15} \text{ см}!$$

Limiting radius of the sun can be 18 billion км. Sun will swallow whole own planetary system. Possessing gigantic energy of the internal gravitational field → $E_{\mu nops}$, it will begin to devour whole matter within planetary space-energy of the star → $r_{nops} = \frac{1}{\beta_\gamma \mathbb{N}_{ops}}$; and so and space-energy itself. But this signifies end. Will occur gravitational explosion. Gigantic energy of the star will become part of the universe, but instead of sun will appear supernova - super dense dwarf – pulsar!

From theme 12, for minimum medium star radius equal: $r_S = 2.86064546 \cdot 10^{10}$ см .

It's limiting radius equal:
$r_{gS} = 4.024582046 \cdot 10^{15}$ см. Radius nearly is a limiting radius of the overgiant :

$$r_{S_\star} = 4.023996954 \cdot 10^{15} \text{ см.}$$

Fire-ball or electromagnetic star

Model is founded on hypothesis of the forming the electromagnetic star or fire-ball.

During thunderstorm at discharge of the powerful electromagnetic energy concluded in lightning, electrons can pick up before over relative kinetic energy→ $\Delta E_{e_{кр}}$. if such electron is seized by proton, that electron deeply gets into nucleus of the proton, and is seized by electromagnetic field of the black hole of the proton with energy $E_{g\,*}$.With the result that, brake radiation of the electron $\Delta E_{e_{кр}}$ withhold powerful electromagnetic field of the black hole of the proton within radius of the action eta-muons interaction of this field → r_S .possible present that brake radiation of the electron with over relative kinetic energy $\Delta E_{e_{кр}}$revolves at the speed of light around black hole of the deformed proton, forming luminous sphere with radius $r_{S.}$ → This and there is quasi-stable formation – electromagnetic star or fire-ball.

Equation system composition of the electromagnetic star or fire-ball:

$$\begin{cases} 2\pi\alpha^{5/11} \cdot \gamma^{6/11} \cdot \Upsilon_e^2 \cdot E_g \cdot r_g \cdot \Delta E_{e_{кр}} \cdot r_{nops} = 2\pi\gamma \cdot \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e}}\,; \rightarrow \begin{bmatrix}\text{equation of the moment of the} \\ \text{energy of the fire} - \text{ball}\end{bmatrix} \\ E_{g\,*} = \frac{r_S}{r_e} \cdot E_{\mu\Psi P} = 2 \cdot \int_{r_{\mu min}}^{r_S} \frac{r_g}{\frac{r_g}{r_e} \cdot E_{\mu\Psi P}} \cdot E_g \cdot dE_g \cdot \left(\frac{1}{r_{\mu min}} - \frac{1}{r_g}\right) \rightarrow \begin{bmatrix}\text{integral equation of the internal} \\ \text{electromagnetic field of the} \\ \text{fire} - \text{ball}\end{bmatrix} \\ \Delta E_{e_{кр}} = \frac{r_S}{\frac{r_S}{r_e} \cdot E_{\mu\Psi P}} \cdot E_{g\,*} \cdot e \cdot \left(\frac{1}{r_{g\,*}} - \frac{1}{r_S}\right); \quad \rightarrow \quad \begin{bmatrix}\text{power equation of the energy of the internal} \\ \text{electromagnetic field of the fire} - \text{ball}\end{bmatrix} \end{cases}$$

where:

$\Upsilon_e^2 \rightarrow$ current electro – gravitational moment of the energy of the internal electromagnetic field of the fire-ball;

E_g и r_g → accordingly current importances of the values of the energy and radius of the action eta-muons interaction of the internal electromagnetic field of the fireball;

$\beta_\Sigma = \frac{e^2}{r_g}$; → energy of the eta – muon interaction in hyperspace – energy of the internal electromagnetic field of the fireball, where moment of the energy of the eta-muons: $M_e = \beta_\Sigma \cdot r_g = e^2$;

$$E_{\mu\Psi e} = \frac{1}{\Psi^2_{\sqrt{\beta_e}} \cdot e} = 1.864422926 \cdot 10^{15} \text{ эрг}$$

→ potential energy of the electromagnetic field of the

black hole of the electron; where: $\Psi^2_{\sqrt{\beta_e}} \cdot e = \frac{|\Psi^2_{\sqrt{\lambda}}| \cdot e}{\beta_e^{7/4}} = r_{\mu e} = 5.363589913 \cdot 10^{-16}\text{см}$ → depth of the penetration of electromagnetic power in electron;

$$E_{\mu\Psi P} = \frac{1}{\Psi^2_{\sqrt{\beta_P}} \cdot e} = 9.065546296 \cdot 10^{20}\text{эрг}$$

→ potential energy of the electromagnetic field of the black

hole of the proton; where: $r_{\mu min} = \Psi^2_{\sqrt{\beta_P}} \cdot e = 1.103077484 \cdot 10^{-21}\text{см}$;

$$\beta_e = \frac{\alpha_\mu^{5/4}}{\sigma^{1/8}} = 8.203731016 \cdot 10^{-7}\text{эрг} \rightarrow \text{energy rest electron;}$$

$\left|\Psi^2_{\sqrt{\lambda}}\right| = \left|\sqrt{\Psi_\lambda}\right| = \beta_{\Psi*}^{3/4} \cdot \beta_\gamma^{2/5} = 4.993310077 \cdot 10^{-17}$ → module of the square of the number psi –

square moment of the energy of the elementary particles;

$$\left|\ddot{\Psi}^2_{\sqrt{\lambda}}\right| = \left|\sqrt{\ddot{\Psi}_\lambda}\right| = \frac{\beta_\gamma^{2/5}}{\beta_\gamma^{1/8}} = \beta_\gamma^{11/40} = 4.718188597 \cdot 10^{-11}$$

→ module of the square of the number psi –

square moment of the energy of the piece of the matter;

$\sqrt{\ddot{\Psi}_{\beta_P}} = \left|\sqrt{\ddot{\Psi}_\lambda}\right| \cdot \beta_P^{3/8}$; where: $\beta_P = 1.457604579 \cdot 10^{-3}$erg

→ rest energy of astronomical proton;

$E_{g*} = \frac{r_S}{r_e} \cdot E_{\mu\Psi P}$ → energy of the internal electromagnetic field of the fireball;

r_{g*} → electromagnetic radius of the fireball;

r_S → radius of the fireball – electromagnetic star;

$\Delta E_{e_{кр}}$ → limiting brake radiation of the electron or maximum kinetic energy of the electron;

$r_{\lambda e}$ → own wave radius – vector of the electron;

according to theory of the elementary particles: $r_{\lambda e} = \frac{\sqrt{\Psi_{\lambda\beta_e}}}{\left(1 - \frac{V^2_{скр}}{C_0^2}\right)^2 \cdot \sqrt{\Delta E_{e_{кр}}}}$; where: $\frac{V_{кр}}{C_0}$ →

we find from condition: $\Delta_e = 1$;

$$\Delta_e = \frac{\sqrt{\frac{V_{скр}}{C_0}}}{\sqrt{1-\frac{V_{скр}^2}{C_0^2}}} \cdot \beta_\Psi^{1/4} \cdot \sqrt{F_\gamma \cdot F_\Psi} = 1 ; \rightarrow \frac{V_{скр}}{C_0} = -\frac{F_\gamma \cdot F_\Psi \cdot \sqrt{\beta_\Psi}}{2} + \sqrt{\frac{F_\gamma^2 \cdot F_\Psi^2 \cdot \beta_\Psi}{4} + 1} ;$$

$$\left(1-\frac{V_{скр}^2}{C_0^2}\right)^2 = \frac{V_{скр}^2}{C_0^2} \cdot \beta_\Psi \cdot F_\gamma^2 \cdot F_\Psi^2 = \left(\sqrt{\frac{(F_\gamma \cdot F_\Psi)^2 \cdot \beta_\Psi}{4} + 1} - \frac{F_\gamma \cdot F_\Psi \cdot \sqrt{\beta_\Psi}}{2}\right)^2 \cdot \beta_\Psi \cdot F_\gamma^2 \cdot F_\Psi^2 ;$$

for electron : $\beta_\Psi = \beta_e$; $F_\gamma = F_\Psi = \alpha$;

$$\left(1-\frac{V_{скр}^2}{C_0^2}\right)^2 = \left(\sqrt{\frac{\alpha^4 \cdot \beta_e}{4} + 1} - \frac{\alpha^2 \cdot \sqrt{\beta_\Psi}}{2}\right)^2 \cdot \beta_e \cdot \alpha^4 ;$$

$$r_{\lambda e} = \frac{\sqrt{\Psi_{\lambda\beta_e}}}{\left(\sqrt{\frac{\alpha^4 \cdot \beta_e}{4} + 1} - \frac{\alpha^2 \cdot \sqrt{\beta_e}}{2}\right)^2 \cdot \beta_e \cdot \alpha^4 \cdot \sqrt{\Delta E_{e_{кр}}}} ;$$

$$r_{\lambda e} = \frac{\left|\sqrt{\Psi_\lambda}\right|}{\left(\sqrt{\frac{\alpha^4 \cdot \beta_e}{4} + 1} - \frac{\alpha^2 \cdot \sqrt{\beta_e}}{2}\right)^2 \cdot \beta_e^{5/4} \cdot \alpha^4 \cdot \sqrt{\Delta E_{e_{кр}}}} ; \quad \left(1-\frac{V_{скр}^2}{C_0^2}\right)^2 = 7.639842196 \cdot 10^{-3} ;$$

$$\boxed{r_{\lambda e} = \frac{2.842607559 \cdot 10^{-11}}{\sqrt{\Delta E_{e_{кр}}}}} \text{ if: } \left| \begin{array}{l} r_{\lambda e} = \beta_\gamma^{2/5} \rightarrow \text{beginning } r_\mu - \text{pass: that } \Delta E_{e_{кр}} \\ \text{that: } \Delta E_{e_{кр}} = 8.85850068 \cdot 10^8 \text{erg;} \end{array} \right|$$

Now we shall convert equation of the moment of the energy of the fireball:

$$\Upsilon_e^2 = \frac{1}{\mathbb{N}_{g_*}} ; \quad \beta_\Sigma \cdot \mathbb{N}_{g_*} = \frac{r_g}{r_e} \cdot E_{\mu\Psi P} ; \quad \beta_\Sigma = \frac{e^2}{r_g} ; \rightarrow \mathbb{N}_{g_*} = r_g^2 \cdot r_e \cdot E_{\mu\Psi P} ; \quad \boxed{\Upsilon_e^2 = \frac{1}{r_g^2 \cdot r_e \cdot E_{\mu\Psi P}}} ; \rightarrow$$

$$\frac{\left(\frac{\alpha}{\gamma}\right)^{5/11} \cdot E_g \cdot r_g \cdot \Delta E_{e_{кр}} \cdot r_{nops}}{r_g^2 \cdot r_e \cdot E_{\mu\Psi P}} = \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e}} ; \rightarrow \frac{E_g}{r_g} \cdot \Delta E_{e_{кр}} =$$

$$= \left(\frac{\gamma}{\alpha}\right)^{5/11} \cdot \frac{\beta_\gamma \mathbb{N}_{ops}}{e} \cdot E_{\mu\Psi P} \cdot \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e}} ;$$

$$\frac{E_g}{r_g} \cdot \Delta E_{e_{кр}} = 1.001087906 \cdot 10^{11} ;$$

$$E_g = \left(\frac{\gamma}{\alpha}\right)^{5/11} \cdot \frac{\beta_\gamma \mathbb{N}_{ops}}{e} \cdot \frac{E_{\mu\Psi P}}{\Delta E_{e_{\kappa p}}} \cdot \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e}} \cdot r_g ; \; E_g \cdot dE_g =$$

$$= \left(\frac{\gamma}{\alpha}\right)^{\frac{10}{11}} \cdot \left(\frac{\beta_\gamma \mathbb{N}_{ops}}{e}\right)^2 \cdot \left(\frac{E_{\mu\Psi P}}{\Delta E_{e_{\kappa p}}}\right)^2 \cdot \ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e} \cdot r_g \cdot dr_g$$

We shall substitute expression for current value of the energy of internal electromagnetic field of the fireball into integral equation:

$$E_{g*} = 2 \cdot \int_{r_{\mu min}}^{r_S} \frac{r_e}{E_{\mu\Psi P}} \cdot E_g \cdot dE_g \cdot \left(\frac{1}{r_{\mu min}} - \frac{1}{r_g}\right) ; \quad r_{\mu min} = \Psi^2_{\sqrt{\beta_P}} \cdot e = \frac{1}{E_{\mu\Psi P}} ;$$

$$E_{g*} \sim 2 \cdot \int_{r_{\mu min}}^{r_S} \frac{r_e}{E_{\mu\Psi P}} \cdot E_g \cdot dE_g \cdot \frac{1}{r_{\mu min}} = 2r_e \cdot \int_{r_{\mu min}}^{r_S} E_g \cdot dE_g = 2r_e \cdot \left.\frac{E_g^2}{2}\right|_{r_{\mu min}}^{r_S} = \left| r_e \cdot E_g^2 \right|_{r_{\mu min}}^{r_S} =$$

$$= \left(\frac{\gamma}{\alpha}\right)^{10/11} \cdot \left(\frac{\beta_\gamma \mathbb{N}_{ops}}{e}\right)^2 \cdot \left(\frac{E_{\mu\Psi P}}{\Delta E_{e_{\kappa p}}}\right)^2 \cdot \ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e} \cdot r_e \cdot \left(r_S^2 - r_{\mu min}^2\right) ;$$

$$E_{g*} \sim \left(\frac{\gamma}{\alpha}\right)^{10/11} \cdot \left(\frac{\beta_\gamma \mathbb{N}_{ops}}{e}\right)^2 \cdot \left(\frac{E_{\mu\Psi P}}{\Delta E_{e_{\kappa p}}}\right)^2 \cdot \ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e} \cdot r_e \cdot r_S^2 = \frac{r_S}{r_e} \cdot E_{\mu\Psi P} ; \rightarrow$$

$$\Delta E_{e_{\kappa p}} = \left(\frac{\gamma}{\alpha}\right)^{5/11} \cdot \frac{\beta_\gamma \mathbb{N}_{ops}}{e} \cdot \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e} \cdot E_{\mu\Psi P}} \cdot r_e \cdot \sqrt{r_S} ; \quad \boxed{\Delta E_{e_{\kappa p}} = 1.384166149 \cdot 10^{10} \cdot \sqrt{r_S}}$$

From power equation of the energy we shall define electromagnetic radius of the fireball $\rightarrow r_{g*}$?

$$\Delta E_{e_{\kappa p}} = \frac{r_S}{\frac{r_S}{r_e} \cdot E_{\mu\Psi P}} \cdot E_{g*} \cdot e \cdot \left(\frac{1}{r_{g*}} - \frac{1}{r_S}\right) = \frac{E_{g*}}{E_{\mu\Psi P}} \cdot \left(\frac{1}{r_{g*}} - \frac{1}{r_S}\right) = \frac{r_S}{r_e} \cdot \left(\frac{1}{r_{g*}} - \frac{1}{r_S}\right) ;$$

$$\Delta E_{e_{\kappa p}} \cdot r_e = \frac{r_S}{r_{g*}} - 1 ;$$

$$r_{g*} = \frac{r_S}{r_e \cdot \Delta E_{e_{\kappa p}} + 1} = \frac{r_S}{1 + 5.762371092 \cdot 10^{19} \cdot \sqrt{r_S}} ; \quad \boxed{r_{g*} \sim \sqrt{r_S} \cdot 1.735396739 \cdot 10^{-20}}$$

We shall define limits for external radius of the fireball $\rightarrow r_S$:

r_{Smin} → we shall define from condition equality: $\Delta E_{e_{\kappa p}} = E_{g*}$; → energy of the brake radiation of the electron cannot be more energy of the internal electromagnetic field of the fireball:

$$\left(\frac{\gamma}{\alpha}\right)^{\frac{5}{11}} \cdot \frac{\beta_\gamma \mathbb{N}_{ops}}{e} \cdot \sqrt{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e} \cdot E_{\mu\Psi P}} \cdot r_e \cdot \sqrt{r_S} = \frac{r_S}{r_e} \cdot E_{\mu\Psi P} ; \; r_{S_{min}} =$$

$$= \left(\frac{\gamma}{\alpha}\right)^{\frac{10}{11}} \cdot \left(\frac{\beta_\gamma \mathbb{N}_{ops}}{e}\right)^2 \cdot \frac{\ddot{\Psi}_{\beta_P} \cdot E_{\mu\Psi e}}{E_{\mu\Psi P}} \cdot r_e^4 ;$$

$\mathbf{r_{s_{min}}} = 4.040308117 \cdot 10^{-3}$см ; $\Delta E_{e_{\kappa p min}} = 8.798233151 \cdot 10^{8}$erg ; $r_{\lambda e} =$
$= 9.583390243 \cdot 10^{-16} \sim \beta_{\gamma}^{2/5}$;

$r_{g*_{min}} = 1.103077483 \cdot 10^{-21}$см $= r_{\mu min} = \Psi^{2}_{\sqrt{\beta_P}} \cdot e$; $E_{g*} = \frac{r_S}{r_e} \cdot E_{\mu\Psi P} = \Delta E_{e_{\kappa p}} =$
$= 8.798233151 \cdot 10^{8}$;

$\mathbf{r_{s_{max}}} \rightarrow$ we shall define from condition: $r_{g*} = r_{\mu} = \beta_{\gamma}^{2/5}$ → electromagnetic radius of the fire ball cannot be beyond the scope of the hyperspace – energy of the black hole of the proton,

that is to say r_{μ} → pass:

$\beta_{\gamma}^{2/5} = \sqrt{r_S} \cdot 1.735396739 \cdot 10^{-20}$; $r_{S_{max}} = 3.028837938 \cdot 10^{9}$см ; $\Delta E_{e_{\kappa p max}}$
$= 7.617741692 \cdot 10^{14}$

$r_{\lambda e_{min}} = 1.029920696 \cdot 10^{-18}$ см; $E_{g*_{max}} = 6.595641128 \cdot 10^{20}$erg ; $r_{S_{min}} \leq r_S \leq r_{S_{max}}$;

Other version for determination $r_{S_{max}}$?

$E_{g*} = E_{\mu\Psi e}$; → maximum energy of the internal electromagnetic field of the fireball equal →

→potential energy of the electromagnetic field of the black hole of the electrona:

$$\frac{r_S}{r_e} \cdot E_{\mu\Psi P} = E_{\mu\Psi e} ; \rightarrow r_{S_{max}} = r_e \cdot \frac{E_{\mu\Psi e}}{E_{\mu\Psi P}} = r_e \cdot \left(\frac{\beta_e}{\beta_P}\right)^{7/4} = r_e \cdot 2.056602951 \cdot 10^{-6};$$

$$r_{S_{max}} = 8561.767964\ cm;$$

$$r_{g*_{max}} = 1.605759514 \cdot 10^{-18}\text{см} ; \quad E_{g*} = E_{\mu\Psi e} = 1.864422926 \cdot 10^{15}\ \text{erg} ;$$

$$\Delta E_{e_{\kappa p}} = 1.280766474 \cdot 10^{12}\ \text{erg} ; \quad r_{\lambda e_{min}} = 2.511781927 \cdot 10^{-17}\text{см} ;$$

$$\beta_y = 2.500133778 \cdot 10^{-17}\ \text{erg} ;$$

$$r_{\lambda e_{min}} \rightarrow \beta_y ;$$