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$2\pi_\star\ \beta_\Psi$ – Elementary Particles

Higgs particle as $2\pi_\star\beta_\Psi$ –elementary particle space – energy of the maximum super giant star of our universe and higgs field quantum as eta – muon of the planetary – orbital space – energy of the our universe $r_{nops} = \frac{1}{\beta_\gamma \mathbb{N}_{ops}}$

Key words: Higgs particle, field quantum of Higgs, velocity and factor of geometry of cold expansion of the Universe, Hubble constant, direct and inverse $r_\mu \rightarrow$ passage.

Annotation: Elementary particles and stars live under the same laws of our Universe. From comparisons of energies of an elementary particle of Higgs calculated under the cosmological formula and from model of elementary particles we define more exact value of factor of geometry of cold expansion of the Universe. And accordingly we define a velocity of cold expansion of galaxies of our Universe – Hubble's constant and current age of our Universe.

Field quantum of Higgs generation product planetary – orbital space – energy of our Universe: $r_{nops} = \frac{1}{\beta_\gamma \mathbb{N}_{ops}}$. In direct and inverse $r_\mu \rightarrow$ passage the elementary particle of Higgs passes in field quantum of Higgs and on the contrary. Convertibility of two conditions of a substance says that the field quantum of Higgs is a sub elementary particle for which the theory of elementary particles is applicable. On energy of radiation in $r_\mu \rightarrow$ passage, in limits: $\Delta E_\lambda = \Delta E_{кр} - \Delta\beta_\star$ we can judge existence of an elementary particle of Higgs, i.e. ΔE_λ – there is a passport of an elementary particle of Higgs.

$$2\pi_\star\beta_\Psi \rightarrow \text{elementary particles;} \left[F_\Psi = \frac{2\pi_\star}{2\pi};\ F_\gamma = \frac{1}{2\pi}; \text{where} \rightarrow \begin{array}{c} 2\pi_\star = 1.000554252 \\ \text{current value of the} \\ \text{factor of the geometry} \end{array} \atop \text{of the cool expansion of the universe } \textit{from special interpretation of the universe} \right]$$

1) Trigonometric identity and geometry space – energy of the strong interactions of the elementary particles:

$$(\cos\alpha)^{5/4} = \sqrt{\cos\alpha_\gamma};\ \cos\alpha_\gamma = \frac{C_0 T_0}{Ç_\gamma T_\gamma};\ \frac{T_0}{T_\gamma} = \tan\alpha_\gamma;\ \sqrt{\cos\alpha_\gamma} = \frac{1}{1+\sqrt{\tan\alpha_\gamma}} \rightarrow$$

$$\sqrt{\cos\alpha_\gamma} = \sqrt{\frac{C_0}{Ç_\gamma}} \cdot \left(\frac{1}{\sqrt{\cos\alpha_\gamma}} - 1\right);\ \sqrt{\cos\alpha_\gamma} = -\frac{1}{2}\sqrt{\frac{C_0}{Ç_\gamma}} + \sqrt{\frac{1}{4}\frac{C_0}{Ç_\gamma} + \sqrt{\frac{C_0}{Ç_\gamma}}};\ \text{если } Ç_\gamma \gg C_0 \text{ то } \rightarrow$$

$$\sqrt{\cos\alpha_\gamma} = (\cos\alpha)^{5/4} \sim \left(\frac{C_0}{Ç_\gamma}\right)^{\frac{1}{4}};\ \cos\alpha \sim \left(\frac{C_0}{Ç_\gamma}\right)^{\frac{1}{5}};$$

$$\cos\alpha = \left(\frac{2\pi\sigma\cdot\beta_{\gamma}^{2/5}}{2\pi\alpha\cdot r_{nops}}\right)^{1/5}\cdot\left(\frac{2\pi_{\star}\cdot\beta_{\Psi_0}}{\beta_{\gamma\Psi}}\right)^{4/5}\sim\left(\frac{C_0}{Ç_{\gamma}}\right)^{\frac{1}{5}};\rightarrow\ \beta_{\gamma\Psi} = 2\pi_{\star}\cdot\left(\frac{\sigma}{\alpha}\right)^{\frac{1}{4}}\cdot\left(\frac{\beta_{\gamma}^{2/5}}{r_{nops}}\right)^{\frac{1}{4}}\cdot\left(\frac{Ç_{\gamma}}{C_0}\right)^{\frac{1}{4}}\cdot\beta_{\Psi_0};$$

2) Equation of the moments of the energy internal strong interaction of the elementary particle (in analogy with cosmological theory of the gravitation):

$$2\pi_{\star}\cdot\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}^{2} = \frac{\frac{1}{\beta_{\gamma\Psi}}\cdot\beta_{\gamma\Psi}\cdot\beta_{\Psi_0}}{\mathbb{N}_{\star}\beta_{\gamma\Psi}};\ 2\pi_{\star}\cdot\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0} = \frac{1}{\mathbb{N}_{\star}\beta_{\gamma\Psi}};\ \ M_{F} = 2\pi_{\star}\cdot\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}\cdot\left(\mathbb{N}_{\star}\beta_{\gamma\Psi}\right) = 1;$$

3) From resemblance of the construction of the stars and elementary particles of the universe we draw a conclusion about analogies of the potential energy of the internal power field of the elementary particles and gravitational field of the stars:

$$E_{\gamma\Psi} = \mathbb{N}_{\star}\beta_{\gamma\Psi} = \frac{1}{2\pi_{\star}\cdot\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}} = \frac{\frac{2\pi_{\gamma}}{\beta_{\gamma\Psi}}}{2\pi\alpha\cdot\sqrt[3]{\beta_{\Psi_0}\cdot r_{\gamma\Psi}^{2}}}\cdot\frac{2\pi_{\star}\cdot\beta_{\Psi_0}}{r_{\gamma}}\cdot E_{\mu}\cdot\frac{Ç_{\gamma}^{2}}{Ç_{\star}^{2}};\ \text{где}\rightarrow$$

$$r_{\gamma} = \frac{1}{\beta_{\gamma}};\ E_{\mu} = \frac{1}{\beta_{\gamma}^{51/5}};\ \ Ç_{\star} = \frac{Ç_0}{\beta_{\gamma}^{5}};\ \cos\alpha_{\gamma} = \frac{C_0T_0}{Ç_{\gamma}T_{\gamma}} = \frac{\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}}{r_{\gamma\Psi}}\sim\sqrt{\frac{C_0}{Ç_{\gamma}}};\ r_{\gamma\Psi} = \Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}\cdot\sqrt{\frac{Ç_{\gamma}}{C_0}};$$

$$\left(\frac{Ç_{\gamma}}{C_0}\right)^{\frac{5}{3}} = \frac{\frac{\pi\alpha}{\pi_{\gamma}}}{(2\pi_{\star})^{2}}\cdot\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\cdot\frac{Ç_0^{2}/C_0^{2}}{\beta_{\gamma}^{4/5}\cdot\Psi_{\sqrt{\lambda}}^{2/3}};\ \ \left(\frac{Ç_{\gamma}}{C_0}\right)^{\frac{1}{4}} = \frac{\left(\frac{\pi\alpha}{\pi_{\gamma}}\right)^{3/20}}{(2\pi_{\star})^{3/10}}\cdot\left(\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\right)^{3/20}\cdot\frac{\left(\frac{Ç_0}{C_0}\right)^{3/10}}{\beta_{\gamma}^{3/25}\cdot\Psi_{\sqrt{\lambda}}^{1/10}};$$

4) $$\beta_{\gamma\Psi} = 2\pi_{\star}\cdot\left(\frac{\sigma}{\alpha}\right)^{\frac{1}{4}}\cdot\left(\frac{\beta_{\gamma}^{2/5}}{r_{nops}}\right)^{\frac{1}{4}}\cdot\beta_{\Psi_0}\cdot\frac{\left(\frac{\pi\alpha}{\pi_{\gamma}}\right)^{3/20}}{(2\pi_{\star})^{3/10}}\cdot\left(\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\right)^{3/20}\cdot\frac{\left(\frac{Ç_0}{C_0}\right)^{3/10}}{\beta_{\gamma}^{3/25}\cdot\Psi_{\sqrt{\lambda}}^{1/10}};\ \ \beta_{\gamma\Psi} = \frac{1}{\beta_{x}\cdot n_{\gamma\Psi}};$$

$\rightarrow$

$$\beta_{\gamma\Psi} = \frac{1}{\beta_{x}\cdot n_{\gamma\Psi}} = (2\pi_{\star})^{\frac{14}{17}}\cdot\left(\frac{\pi\alpha}{\pi_{\gamma}}\right)^{\frac{3}{17}}\cdot\left(\frac{\sigma}{\alpha}\right)^{\frac{5}{17}}\cdot\left(\frac{\beta_{\gamma}^{2/5}}{r_{nops}}\right)^{\frac{5}{17}}\cdot\frac{\left(Ç_0/C_0\right)^{\frac{6}{17}}}{\beta_{\gamma}^{12/85}\cdot\left|\Psi_{\sqrt{\lambda}}^{2}\right|^{1/17}}\cdot\beta_{\Psi_0}^{75/68};\rightarrow$$

$$\frac{245.8605882}{n_{\gamma\Psi}^{68/75}} = 712.3236628\cdot\beta_{\Psi_0};\ \rightarrow\ \beta_{\Psi_0} = \frac{0.345152914}{n_{\gamma\Psi}^{68/75}};$$

5) Elementary particles and stars live on one and same law of our universe!

Maximum radius of the super giant of our universe: $R_{\lambda s\,\star} = 4.023995324\cdot 10^{15}\,sm$;

$$\beta_{\Psi_\star} = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \left(\frac{\mathbb{N}_{os}}{\mathbb{N}_{op}}\right)^2 \cdot \sqrt{\frac{R_{\lambda S_\star}}{r_{nops}}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2 = 0.345151024\text{erg} = 215.3742393\text{ Gev}$$

$\rightarrow$ Higgs particle!

If maximum elementary particle under: $n_{\gamma\Psi} = 1$ there is higgs particle, then from equation of the energy of the elementary particles we can calculate more proper value of the value of the current factor of the geometry of the cool expansion of the universe: $\rightarrow 2\pi_\star$;

$$\rightarrow 0.345152914 \cdot \left[\frac{2\pi_\star}{(2\pi_\star)}\right]^{\frac{56}{75}} = 0.345151024; \rightarrow \boxed{(\mathbf{2\pi_\star}) = \mathbf{1.00056159}}$$

A) then current value of the speed of the cool expansion galaxies of our universe:

$$(V_{S_\star}) = (2\pi_\star) \cdot 72.95956199 = 73.00053535\ \frac{\text{кm}}{\text{s}} \rightarrow \text{this and there is Hubble constant}$$

B) knowing elaborated value of the current factor of the geometry of the cool expansion of the universe we shall define current age of the universe: $T_\star \rightarrow$

$$\frac{T_\star}{\Delta T_\star} = 1 - \frac{\text{Ln}(2\pi_\star)}{\text{Ln}2\pi_\star} \text{ where } \begin{Bmatrix} \Delta T_\star = 10^{1289.506567}\text{s} \rightarrow \text{time of the life or time cool expansion of the universe} \\ (2\pi_\star)_1 = 1730.333498 \rightarrow \text{factor of the geometry of the universe in beginning cool expansion} \end{Bmatrix}$$

$$T_\star = \Delta T_\star \cdot 0.999924701\text{ s}$$

C) Life time of the universe its eternity. Life time of our universe relatively life time of the universe this instant! – Law of relativity of the times in universe.

$$\frac{T_\star}{\Delta T_\star} = 0.999924701 = \frac{T_{\gamma_\star}}{\Delta T_{\gamma_\star}}; where \begin{Bmatrix} T_{\gamma_\star} \rightarrow \text{the age of our universe} \\ \Delta T_{\gamma_\star} = 3.904905577 \cdot 10^{17}s \rightarrow \text{life time of our universe} \end{Bmatrix}$$

$$T_{\gamma_\star} = \Delta T_{\gamma_\star} \cdot 0.9999247013 = 3.904611542 \cdot 10^{17}\text{s} \sim 12.38144198 \text{ billion years}$$

$$\Delta T_{\gamma_\star} - T_{\gamma_\star} = \Delta T_{\gamma_\star} \cdot 7.5299 \cdot 10^{-5} = 2.940354845 \cdot 10^{13}\text{s} \sim 932380.405 \text{ years}$$

$$\rightarrow \begin{bmatrix} \text{time to end of the light or apocalypse of our universe} \end{bmatrix}$$

$$\frac{T_\star}{\Delta T_\star} = 0.999924701 = \frac{T_p}{\Delta T_p}; \begin{Bmatrix} T_p \rightarrow \text{current age of the planets of the solar system} \\ \Delta T_p = 1.485716413 \cdot 10^{17}s \rightarrow \text{life time of the solar system} \end{Bmatrix}$$

$$T_p = \Delta T_p \cdot 0.999924701 = 1.48560454 \cdot 10^{17}\text{s} \sim 4.710821093 \text{ billion years}$$

$$\Delta T_p - T_p = \Delta T_p \cdot 7.5299 \cdot 10^{-5} = 1.118729602 \cdot 10^{13}\text{s} \sim 354746.8296 \text{ year}$$

$$\rightarrow \begin{bmatrix} \text{time to end of the light or apocalypse of the solar system} \end{bmatrix}$$

6) $$\boxed{\beta_{\Psi_0} = \frac{0.345151024}{n_{\gamma\Psi}^{68/75}}};$$

$$\rightarrow \left\{ \begin{array}{l} \text{we shall define limits of the discrete numbers } n_{\gamma\Psi} \text{ for} \\ \text{el. particles radiated by stars — super giants in field planetary —} \\ \text{—orbital space — energy of the stars} \rightarrow 2\pi\alpha \cdot r_{nops} = \dfrac{2\pi\alpha}{\beta_\gamma \mathbb{N}_{ops}}; \end{array} \right.$$

$$n_{\gamma\Psi} = 1; \ \beta_{\Psi_\star} = 0.345151024 \text{ erg} \rightarrow \left[\begin{array}{c} \text{Higgs elementary particle radiated by star — maximum} \\ \text{super giant of our universe} \end{array} \right]$$

Energy of the higgs particles must be more energy of the elementary particle radiated by maximum planet-forming star:

$$r_{S_\star} = r_e \cdot \mathbb{N}_X = \frac{1}{e \cdot X^{1/4}} = 1.290401549 \cdot 10^{13} \text{см}; \rightarrow \beta_{\Psi_\star} = 0.0195495 \text{ erg}$$

$$\frac{0.345151024}{n_{\gamma\Psi}^{68/75}} > 0.0195495; \rightarrow n_{\gamma\Psi} < 23.72619733; \text{so } n_{\gamma\Psi max} = 23;$$

$$\rightarrow \left[\begin{array}{l} \beta_{\Psi min} = \dfrac{0.345151024}{23^{\frac{68}{75}}} = \\ \quad = 0.020108326 \text{ erg} \end{array} \right]$$

$$2\pi_\star \boldsymbol{\beta_\Psi} \rightarrow \textbf{elementary particles}: \text{ factor of the geometry: } \left\{ \begin{array}{l} \mathbf{F_\Psi} = \dfrac{\mathbf{2\pi_\star}}{\mathbf{2\pi}} \\ \mathbf{F_\gamma} = \dfrac{\mathbf{1}}{\mathbf{2\pi}} \end{array} \right\}; \left| \begin{array}{c} \text{limits of the change:} \\ n_{\gamma\Psi} = \{1 \div 23\} \end{array} \right|$$

7) We shall define parameters of the strong interactions of the $2\pi_\star\beta_{\Psi_0} \rightarrow$ elementary particles

(See model of the strong interaction of the elementary particles in monography Microcosm and Universe)

1/ potential energy of the strong interactions of the elementary particle:

$$E_{\gamma\Psi} = n_\star \cdot \beta_{\gamma\Psi} = \frac{1}{2\pi_\star \cdot \Psi^2_{\sqrt{\lambda}} \beta_{\Psi_0}} = \frac{\beta_{\Psi_0}^{3/4}}{2\pi_\star \cdot \left|\Psi^2_{\sqrt{\lambda}}\right|}; \text{where} \left\{ \begin{array}{c} 2\pi_\star = 1.00056159 \\ \left|\Psi^2_{\sqrt{\lambda}}\right| = 4.993310077 \cdot 10^{-17} \\ \beta_{\Psi_0} = \dfrac{0.345151024}{n_{\gamma\Psi}^{68/75}} \end{array} \right\}$$

$$E_{\gamma\Psi} = \frac{9.013106686 \cdot 10^{15}}{n_{\gamma\Psi}^{17/25}} \text{erg}$$

2/ speed of the eta-muons of strong interactions in laboratory reference system:

$$\left(\frac{Ç_\gamma}{C_0}\right)^{1/4} = \frac{\beta_{\gamma\Psi}}{2\pi_\star \cdot \beta_{\Psi_0}} \cdot \left(\frac{\alpha}{\sigma}\right)^{\frac{1}{4}} \cdot \left(\frac{r_{nops}}{\beta_\gamma^{2/5}}\right)^{\frac{1}{4}}; \ Ç_\gamma = C_0 \cdot \left(\frac{\beta_{\gamma\Psi}}{2\pi_\star \cdot \beta_{\Psi_0}}\right)^4 \cdot \frac{\alpha}{\sigma} \cdot \frac{r_{nops}}{\beta_\gamma^{2/5}}; \ \beta_{\gamma\Psi} = \frac{1}{\beta_x \cdot n_{\gamma\Psi}};$$

$$\frac{Ç_\gamma}{C_0} = \frac{8.016797365 \cdot 10^{42}}{n_{\gamma\Psi}^{28/75}}; \quad Ç_\gamma = \frac{2.387462376 \cdot 10^{53}}{n_{\gamma\Psi}^{28/75}} \frac{\text{см}}{\text{s}};$$

3/ radius of the action eta - muons of the strong interactions in laboratory reference system:

$$r_{\gamma\Psi} = Ç_\gamma T_\gamma = \Psi^2_{\sqrt{\lambda}} \beta_{\Psi_0} \cdot \sqrt{\frac{Ç_\gamma}{C_0}} = n_{\gamma\Psi}^{37/75} \cdot 313965.6345 \text{ см};$$

4/ energy of the black hole of the elementary particle:

$$E_{\mu\Psi} = F_\Psi \cdot \beta_{\Psi_0} \cdot 10^{350.2688602}; \; F_\Psi = \frac{2\pi_\star}{2\pi} = 0.159244322; \; E_{\mu\Psi} = \frac{1.020782754 \cdot 10^{349}}{n_{\gamma\Psi}^{68/75}} \text{erg};$$

5/ radius of the black hole of the elementary particle:

$$r_{\mu\Psi} = \left(\frac{F_{\gamma\alpha}}{F_\Psi}\right)^2 \cdot \sqrt{\frac{n_{\gamma\Psi}}{\beta_{\Psi_0}}} \cdot 1.941992982 \cdot 10^{-97}; \; F^2_{\gamma\Psi} = \frac{F_\Psi}{\alpha^{5/11} \cdot \Upsilon^{6/11}}; \; r_{\mu\Psi} = n_{\gamma\Psi}^{\frac{143}{150}} \cdot 1.256511446 \cdot 10^{-96} \text{см}$$

6/ maximum power of the strong interactions of the elementary particle:

$$F_{max} = \frac{1}{\left(2\pi_\star \cdot \Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi_0}\right)^2} = \frac{\beta_{\Psi_0}^{3/4}}{(2\pi_\star)^2 \cdot \left|\Psi^2_{\sqrt{\lambda}}\right|^2} = \frac{8.123609214 \cdot 10^{31}}{n_{\gamma\Psi}^{34/25}} dyne;$$

7/ power of the single eta-muons of the strong interactions of the elementary particle:

$$F_\mu = \frac{\beta_{\gamma\Psi}}{2\pi_\star \cdot \Psi^2_{\sqrt{\lambda}} \beta_{\Psi_0}} = \frac{\beta_{\Psi_0}^{3/4}}{2\pi_\star \cdot \beta_x \cdot \left|\Psi^2_{\sqrt{\lambda}}\right| \cdot n_{\gamma\Psi}} = 3.905384134 \cdot 10^{18} dyne;$$

8/ maximum number eta - muons of the strong interactions of the elementary particle:

$$n_\star = \frac{E_{\gamma\Psi}}{\beta_{\gamma\Psi}} = \frac{F_{max}}{F_\mu} = n_{\gamma\Psi}^{8/25} \cdot 2.080105038 \cdot 10^{13};$$

9/ period of the oscillation and radius of the action eta – muons of the strong interactions of the elementary particle in own reference system:

$$T_0 = \frac{\Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi_0}}{C_0} = \frac{\left|\Psi^2_{\sqrt{\lambda}}\right|}{C_0 \cdot \beta_{\Psi_0}^{3/4}} = n_{\gamma\Psi}^{17/25} \cdot 3.723454331 \cdot 10^{-27} \text{s}; \; r_{\lambda 0} = C_0 T_0 = n_{\gamma\Psi}^{17/25} \cdot 1.108872623 \cdot 10^{-16} \text{см}$$

10/ own speed eta – muons of the strong interactions:

$$Ç_\eta = C_0 \cdot n_\star = n_{\gamma\Psi}^{8/25} \cdot 6.194708797 \cdot 10^{23} \frac{\text{см}}{\text{s}}$$

11/ own time of the action or radiation eta – muons of the strong interactions of the elementary particle:

$$T_{\mu} = \frac{T_0}{n_{\star}} = n_{\gamma\Psi}^{9/25} \cdot 1.79003188 \cdot 10^{-40} s\,;$$

12/ minimum radius of the action or depth of the penetration eta – muons of the strong interactions:

$$r_{eff} = \frac{2\pi_{\star} \cdot \Psi_{\sqrt{\lambda}}^2 \beta_{\Psi_0}}{n_{\star}} = \frac{2\pi_{\star} \cdot \left|\Psi_{\sqrt{\lambda}}^2\right|}{n_{\star} \cdot \beta_{\Psi_0}^{3/4}} = n_{\gamma\Psi}^{9/25} \cdot 5.333842928 \cdot 10^{-30} см;$$

13/ time of the action or radiation eta – muons of the strong interactions:

$$T_{\gamma} \sim T_0 \cdot \sqrt{\frac{C_0}{Ç_{\gamma}}} = n_{\gamma\Psi}^{13/15} \cdot 1.315060031 \cdot 10^{-48} s\,;$$

(II) $\mathbf{2\pi_{\star}\beta_{\Psi_0} \to sub - elementary\ particle\ or\ higgs\ field\ quantum}$: $\begin{cases} \mathbf{F_{\Psi} = \frac{2\pi_{\star}}{2\pi}}\,; \\ \mathbf{F_{\gamma} = \alpha^{5/11} \cdot \gamma^{6/11}}; \end{cases}$

Higgs field quantum or eta - muon planetary - orbital space – energy of our universe $\to r_{nops} = \frac{1}{\beta_{\gamma}\mathbb{N}_{ops}}$; in $r_{\mu} \to$ cross-over, higgs particle loses surplus kinetic energy and crossing into higgs field quantum with quasilight kinetic speed. In back $r_{\mu} \to$ cross-over, higgs field quantum throws surplus energy rest and crossing into higgs elementary particle. Reversibility two conditions of the matter speaks of that that higgs field quantum possible consider sub – elementary particle, for which applicable theory of the elementary particle.

1/trigonometric identity and geometry of the space - energy of the strong interactions of the sub-elementary particle – higgs quantum:

$$(\cos\alpha)^{5/4} = \sqrt{\cos\alpha_{\gamma}} \sim \left(\frac{C_0}{Ç_{\gamma}}\right)^{1/4}; \to \cos\alpha \sim \left(\frac{C_0}{Ç_{\gamma}}\right)^{1/5};$$

$$\cos\alpha = \left(\frac{2\pi_{\star} \cdot \beta_{\Psi_0}}{r_{nops}}\right)^{1/5}$$

$$\cdot \left(\frac{\left(\frac{2\pi_{\gamma}}{\beta_{\gamma}}\right)^{\frac{1}{5}} \cdot (2\pi_{\gamma}e)^{\frac{4}{5}}}{\beta_{\gamma\Psi}}\right)^{\frac{4}{5}} \sim \left(\frac{C_0}{Ç_{\gamma}}\right)^{\frac{1}{5}}; \left\{\begin{matrix} \frac{2\pi_{\gamma}}{\beta_{\gamma}} \to \text{radius} - \text{length space} - \text{energy of our universe} \\ 2\pi_{\gamma} \cdot e \to \text{radius} - \text{length of the } r_{\mu} \to \text{cross} \\ r_{nops} = \frac{1}{\beta_{\gamma}\mathbb{N}_{ops}} \to \text{radius of the planetary} - \text{orbita space} - \text{energy of our universe} \end{matrix}\right\}$$

$$\beta_{\gamma\Psi} = 2\pi_{\gamma} \cdot (2\pi_{\star})^{\frac{1}{4}} \cdot \frac{e^{4/5}}{\beta_{\gamma}^{1/5}} \cdot \frac{\left(\frac{Ç_{\gamma}}{C_0}\right)^{1/4}}{r_{nops}^{1/4}} \cdot \beta_{\Psi_0}^{1/4} = 2\pi_{\gamma} \cdot (2\pi_{\star})^{\frac{1}{4}} \cdot e^{\frac{4}{5}} \cdot \beta_{\gamma}^{\frac{1}{20}} \cdot n_{ops}^{\frac{1}{4}} \cdot \left(\frac{Ç_{\gamma}}{C_0}\right)^{\frac{1}{4}} \cdot \beta_{\Psi_0}^{\frac{1}{4}};$$

2/ equation of the moments of the energy internal strong interactions of the higgs sub-particle:

$$\Psi_{\sqrt{\lambda}}^{2}\cdot\beta_{\Psi_0}^{2}=\frac{\frac{2\pi\alpha^{5/11}\cdot\Upsilon^{6/11}}{\beta_{\gamma\Psi}}\cdot\beta_{\gamma\Psi}\cdot\beta_{\Psi_0}}{n_{\star}\cdot\beta_{\gamma\Psi}};\rightarrow\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}=\frac{2\pi\alpha^{5/11}\cdot\Upsilon^{6/11}}{n_{\star}\cdot\beta_{\gamma\Psi}};\rightarrow$$

$$M_F=\Psi_{\sqrt{\lambda}}^{2}\beta_{\Psi_0}\cdot(n_{\star}\cdot\beta_{\gamma\Psi})=2\pi\alpha^{5/11}\cdot\Upsilon^{6/11};$$

3/ potential energy internal power field of the higgs sub-particle:

$$E_{\gamma\Psi}=n_{\star}\cdot\beta_{\gamma\Psi}=\frac{2\pi\alpha^{5/11}\cdot\Upsilon^{6/11}}{\Psi_{\sqrt{\lambda}}^{2}\cdot\beta_{\Psi_0}}=\frac{\frac{2\pi_{\gamma}}{\beta_{\gamma\Psi}}}{2\pi\cdot\alpha^{5/8}\cdot\sqrt[3]{\beta_{\Psi_0}\cdot r_{\gamma\Psi}^{2}}}\cdot\frac{2\pi_{\star}\cdot\beta_{\Psi_0}}{r_{\gamma}}\cdot E_{\mu}\cdot\frac{\varsigma_{\gamma}^{2}}{\varsigma_{\star}^{2}};\rightarrow$$

$$\left(\frac{\varsigma_{\gamma}}{C_0}\right)^{5/3}=\frac{2\pi\alpha^{5/11}\cdot\Upsilon^{6/11}}{2\pi_{\star}}\cdot\frac{\pi\cdot\alpha^{5/8}}{\pi_{\gamma}}\cdot\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\cdot\frac{\frac{\varsigma_0^{2}}{C_0^{2}}}{\beta_{\gamma}^{4/5}\cdot\Psi_{\sqrt{\lambda}}^{2/3}};$$

$$\left(\frac{\varsigma_{\gamma}}{C_0}\right)^{1/4}=\left(\frac{2\pi\alpha^{\frac{5}{11}}\cdot\Upsilon^{\frac{6}{11}}\cdot\pi\alpha^{\frac{5}{8}}}{2\pi_{\star}\cdot\pi_{\gamma}}\right)^{\frac{3}{20}}\cdot\left(\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\right)^{\frac{3}{20}}\cdot\frac{\left(\frac{\varsigma_0}{C_0}\right)^{\frac{3}{10}}}{\beta_{\gamma}^{\frac{3}{25}}\cdot\Psi_{\sqrt{\lambda}}^{\frac{1}{10}}};$$

4/ substitute 3/ equation into 1/:

$$\beta_{\gamma\Psi}=2\pi_{\gamma}\cdot(2\pi_{\star})^{\frac{1}{4}}\cdot e^{\frac{4}{5}}\cdot\beta_{\gamma}^{\frac{1}{20}}\cdot n_{ops}^{\frac{1}{4}}\cdot\beta_{\Psi_0}^{\frac{1}{4}}\cdot\left(\frac{2\pi\alpha^{\frac{5}{11}}\cdot\Upsilon^{\frac{6}{11}}\cdot\pi\alpha^{\frac{5}{8}}}{2\pi_{\star}\cdot\pi_{\gamma}}\right)^{\frac{3}{20}}\cdot\left(\frac{\beta_{\gamma\Psi}}{\beta_{\Psi_0}}\right)^{\frac{3}{20}}\cdot\frac{\left(\frac{\varsigma_0}{C_0}\right)^{\frac{3}{10}}}{\beta_{\gamma}^{\frac{3}{25}}\cdot\Psi_{\sqrt{\lambda}}^{\frac{1}{10}}};\ \beta_{\gamma\Psi}=\frac{1}{\beta_x\cdot n_{\gamma\Psi}};$$

$$\beta_{\gamma\Psi}=2\pi_{\gamma}\cdot(2\pi_{\star})^{\frac{2}{17}}\cdot\left(2\pi\alpha^{\frac{5}{11}}\cdot\Upsilon^{\frac{6}{11}}\cdot2\pi\alpha^{\frac{5}{8}}\right)^{\frac{3}{17}}\cdot\frac{e^{\frac{16}{17}}\cdot n_{ops}^{\frac{5}{17}}}{\beta_{\gamma}^{\frac{7}{85}}}\cdot\left(\frac{\varsigma_0}{C_0}\right)^{\frac{6}{17}}\cdot\frac{1}{\left|\Psi_{\sqrt{\lambda}}^{2}\right|^{\frac{1}{17}}}\cdot\beta_{\Psi_0}^{15/68};\rightarrow$$

$$\beta_{\gamma\Psi}=\frac{1}{\beta_x\cdot n_{\gamma\Psi}}=\frac{433.3005556}{n_{\gamma\Psi}}=546.2008196\cdot\beta_{\Psi_0}^{15/68};\rightarrow\boxed{\boldsymbol{\beta_{\Psi_0}=\frac{0.350036989}{n_{\gamma\Psi}^{68/15}}\ \mathrm{erg}}}$$

$$n_{\gamma\Psi}=1;\rightarrow\beta_{\Psi_{max}}=0.350036989\ \mathrm{erg}\ \left\{\begin{matrix}\text{maximum sub – elementary particle radiated by}\\ \text{planetary – orbital space – energy of}\\ \text{our universe!}\end{matrix}\right\}$$

5) We use cosmological formula for calculation of the maximum energy of the elementary particle of our universe:

$$\beta_{\Psi_{max}} = \beta_{\Psi\lambda_\star} = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \left(\frac{\mathbb{N}_{os}}{\mathbb{N}_{op}}\right)^2 \cdot \sqrt{\frac{r_{nops}}{r_{nop}}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2 = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{X^4}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^{3/2} \cdot \sqrt{\mathbb{N}_{ops}}} = \mathbf{0.350035938\ erg} = \mathbf{const}.$$

We shall name its higgs sub-particle or higgs field quantum or eta - muon – in honour of physics first offered about its existence. In comparison of the cosmological value of the energy with energy calculated from model of the elementary particles, deflection forms:

$$\frac{0.350036989}{0.350035938} = 1.000003003 \rightarrow \left[\text{within permissible deflections of the physical value of the real world}\right]$$

We shall define limits of the discrete numbers $n_{\gamma\Psi}$ for field quantum or eta - muons planetary - orbital space – energy of our universe: $\rightarrow \left(r_{nops} = \frac{1}{\beta_\gamma \mathbb{N}_{ops}}\right)$

$n_{\gamma\Psi} = 1; \rightarrow \beta_{\Psi\lambda_\star} = 0.350036989\ \text{erg}$ → Higgs field quantum or eta - muon planetary - orbital space – energy of our universe.

Energy of the higgs quantum must be more energy of the elementary particle radiated by maximum planet - forming star with radius: $r_{S_\star} = r_e \cdot \mathbb{N}_x = \frac{1}{e \cdot X^{1/4}} = 1.290401549 \cdot 10^{13}$ см;

$$\beta_{\Psi\lambda} > \beta_{\Psi_\star} = 0.0195495\ ; \rightarrow \frac{0.350036989}{n_{\gamma\Psi}^{68/15}} > 0.0195495; \rightarrow n_{\gamma\Psi} < 1.889697414; \text{значит: } \boxed{\mathbf{n_{\gamma\Psi} = 1}};$$

$n_{\gamma\Psi} = 1; \rightarrow$ Has only one single importance equal unit – its higgs field quantum generated by planet - orbital space – energy of our universe!

Higgs field quantum single in its sort and is most maximum elementary particle of our universe!

$$\boxed{\mathbf{n_{\gamma\Psi} = 1}; \rightarrow \boldsymbol{\beta_{\Psi\lambda_\star}} = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{X^4}{\beta_\gamma^2} \cdot \frac{\mathbb{N}_{os}^2}{\mathbb{N}_{op}^{3/2} \cdot \sqrt{\mathbb{N}_{ops}}} = \mathbf{0.350035938 \sim 0.350036989 = const}; \left\{\begin{matrix} \mathbf{F_\Psi = \frac{2\pi_\star}{2\pi}} \\ \mathbf{F_\gamma = \alpha^{5/11} \cdot \gamma^{6/11}} \end{matrix}\right\}}$$

6) We shall define parameters of the internal strong interactions of the $2\pi_\star \beta_{\Psi_0} \rightarrow$ sub - particle – higgs field quantum with energy: $\beta_{\Psi\lambda_\star} = 0.350036989\ \text{erg}$;

1/ potential energy of the internal strong interactions of the higgs quantum:

$$E_{\gamma\Psi} = n_\star \cdot \beta_{\gamma\Psi} = \frac{2\pi\alpha^{5/11} \cdot \gamma^{6/11}}{\Psi_{\sqrt{\lambda}}^2 \beta_{\Psi_0}} = \frac{2\pi\alpha^{5/11} \cdot \gamma^{6/11}}{\left|\Psi_{\sqrt{\lambda}}^2\right|} \beta_{\Psi_0}^{3/4} = 9.459963382 \cdot 10^{16} \text{erg}\ ;$$

2/ speed of the eta – muons of the internal strong interactions of the higgs quantum in laboratory reference system:

$$\left(\frac{C_0}{Ç_\gamma}\right)^{1/5} = \left(\frac{2\pi_\star \cdot \beta_{\Psi\lambda_\star}}{r_{nops}}\right)^{1/5} \cdot \left(\frac{2\pi_\gamma \cdot \frac{e^{4/5}}{\beta_\gamma^{1/5}}}{\beta_{\gamma\Psi}}\right)^{4/5} \text{; where } \left\{\begin{array}{c} \beta_{\Psi\lambda_\star} = 0.350036989 \text{ erg} \\ \beta_{\gamma\Psi} = \frac{1}{\beta_x} = 433.3005556 \text{ erg} \\ 2\pi_\star = 1.00056159 \\ C_0 = \frac{1}{X^{3/4}} \frac{cm}{s} \end{array}\right\}$$

$$\left(\frac{C_0}{Ç_\gamma}\right)^{1/5} = 2.081646275 \cdot 10^{-9}; \rightarrow \frac{Ç_\gamma}{C_o} = 2.558381653 \cdot 10^{43}; \rightarrow Ç_\gamma = 7.619052423 \cdot 10^{53} \frac{см}{s};$$

3/ radius of the action eta - muons of the internal strong interactions of the higgs quantum in laboratory:

$$r_{\gamma\Psi} = Ç_\gamma T_\gamma = \Psi^2_{\sqrt{\lambda}} \beta_{\Psi_0} \cdot \sqrt{\frac{Ç_\gamma}{C_0}} = 554990.7532 \text{ см};$$

4/ energy of the black hole of the higgs quantum:

$$F_\Psi = \frac{2\pi_\star}{2\pi} = 0.159244322; \ E_{\mu\Psi} = F_\Psi \cdot \beta_{\Psi\lambda_\star} \cdot 10^{350.2688602} = 1.03523297 \cdot 10^{349} \text{erg};$$

5/ radius of the black hole of the higgs quantum:

$$r_{\mu\Psi} = \left(\frac{F_{\gamma\alpha}}{F_\Psi}\right)^2 \cdot \sqrt{\frac{n_{\gamma\Psi}}{\beta_{\Psi\lambda_\star}}} \cdot 1.941992982 \cdot 10^{-97} =$$

$$= 1.247711168 \cdot 10^{-96} \text{см; where } \left\{ n_{\gamma\Psi} = 1; \ F^2_{\gamma\alpha} = \frac{F_\Psi}{\alpha^{5/11} \cdot \gamma^{6/11}}; \right\}$$

6/ maximum internal power of the strong interactions of the higgs quantum:

$$F_{max} = \frac{2\pi\alpha^{5/11} \cdot \gamma^{6/11}}{\left(\Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi\lambda_\star}\right)^2} = \frac{2\pi\alpha^{5/11} \cdot \gamma^{6/11}}{\left|\Psi^2_{\sqrt{\lambda}}\right|^2} \cdot \beta_{\Psi\lambda_\star}^{3/2} = 8.621570304 \cdot 10^{32} \text{dyne};$$

7/ power of the single eta - muon of the internal strong interactions of the higgs quantum:

$$F_\mu = \frac{\beta_{\gamma\Psi}}{\Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi\lambda_\star}} = \frac{\beta_{\Psi\lambda_\star}^{3/4}}{\beta_x \cdot \left|\Psi^2_{\sqrt{\lambda}}\right|} = 3.948991187 \cdot 10^{18} \text{dyne};$$

8/ maximum number eta - muons of the internal strong interactions of the higgs quantum:

$$n_\star = \frac{E_{\gamma\Psi}}{\beta_{\gamma\Psi}} = \frac{F_{max}}{F_\mu} = 2.183233615 \cdot 10^{14};$$

9/ period of the oscillation and radius of the action eta - muons of the internal strong interactions:

$$T_0 = \frac{\Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi\lambda_\star}}{C_0} = \frac{\left|\Psi^2_{\sqrt{\lambda}}\right|}{C_0 \cdot \beta_{\Psi\lambda_\star}^{3/4}} = 3.684405751 \cdot 10^{-27} \text{s}; \ r_{\lambda_0} = C_0 T_0 = 1.097243663 \cdot 10^{-16} \text{см};$$

10/ own speed of the eta - muons of the internal strong interactions of the higgs quantum:

$$\varsigma_{\eta} = C_0 \cdot n_{\star} = 6.501833433 \cdot 10^{24}\ \text{см}/_{\text{s}}\ ;$$

11/ own time of the action or radiation eta – muons of the internal strong interactions of the higgs quantum:

$$T_{\mu} = \frac{T_0}{n_{\star}} = 1.687591161 \cdot 10^{-41}\text{s}$$

12/ minimum radius of the action or depth of the penetration eta – muons of the strong interactions of the higgs quantum:

$$r_{eff} = \frac{\Psi^2_{\sqrt{\lambda}} \cdot \beta_{\Psi\lambda_{\star}}}{n_{\star}} = \frac{\left|\Psi^2_{\sqrt{\lambda}}\right|}{n_{\star} \cdot \beta^{3/4}_{\Psi\lambda_{\star}}} = 5.025773035 \cdot 10^{-31}\text{см}\ ;$$

13/ time of the action or radiation eta – muons of the strong interactions of the higgs quantum:

$$T_{\gamma} \sim T_0 \cdot \sqrt{\frac{C_0}{\varsigma_{\gamma}}} = 7.284249043 \cdot 10^{-49}\text{s}\ ;$$

(III). Higgs $r_{\mu} \to \text{cross} - \text{over's}$.

We research $r_{\mu} \to$ cross-over’s higgs field quantum into higgs elementary particle and back for determination of the energy, speed and wave parameters of the higgs elementary particle and field quantum.

We shall begin with higgs field quantum with energy rest: $\beta_{\Psi\lambda_{\star}} = 0.350036989$ erg ;

full energy of the higgs quantum : $E_{\Psi\lambda_{\star}}$

$$= \frac{\beta_{\Psi\lambda_{\star}}}{1 - \frac{\sqrt{\frac{C_{\lambda_{\star}}}{\varsigma_0}}}{\sqrt{1 - \frac{C^2_{\lambda_{\star}}}{\varsigma^2_0}}} \cdot \beta^{1/4}_{\Psi\lambda_{\star}} \cdot \sqrt{F_{\gamma}F_{\Psi}}}\ ;\ where \begin{cases} C_{\lambda_{\star}} \to \text{quasilight kinetic speed of the higgs quantum;} \\ F_{\Psi} = \frac{2\pi_{\star}}{2\pi};\ F_{\gamma} = \alpha^{\frac{5}{11}} \cdot \gamma^{\frac{6}{11}}; \\ \varsigma_0 = \frac{C_0}{X} = \frac{1}{X^{7/4}} = 2.749053148 \cdot 10^{24}\text{s} \\ \to \text{world speed of our universe} \end{cases}$$

In first $r_{\mu} \to$ cross-over higgs field quantum throws with itself surplus energy rest and moves over to higgs elementary particle with energy rest: $\beta_{\Psi_{\star}} = 0.345151024$ erg;

Wave equation of the higgs field quantum in $r_{\mu} \to$ cross - over:

$$r_{\lambda cr1} = \beta_{\gamma}^{2/5}$$

$$= \frac{\sqrt{\Psi_{\lambda}}}{\left(1 - \frac{C_{\lambda\star}^2}{\varsigma_0^2}\right)^2 \cdot \sqrt{\Delta E}}; \text{where} \left\{ \begin{matrix} r_{\lambda cr1} \rightarrow \text{critical wave radius} - \text{vector of the higgs quantum} \\ \text{in } r_{\mu} \rightarrow \text{cross} - \text{over}; \\ \Delta E = E_{\Psi\lambda_\star} - \beta_{\Psi\lambda_\star} = E_{\Psi\lambda_\star} \cdot \left(1 - \frac{\beta_{\Psi\lambda_\star}}{E_{\Psi\lambda_\star}}\right) = E_{\Psi\lambda_\star} \cdot \Delta \rightarrow \\ \text{kinetic energy of the higgs quantum}; \ \Delta = 1 - \frac{\beta_{\Psi\lambda_\star}}{E_{\Psi\lambda_\star}}; \end{matrix} \right\}$$

$$\text{since: } \frac{C_{\lambda\star}^2}{\varsigma_0^2} \sim 10^{-28} \rightarrow \text{very small value, that } \beta_{\gamma}^{2/5} \sim \frac{\sqrt{\Psi_{\lambda}}}{\sqrt{\Delta E}} = \frac{\left|\sqrt{\Psi_{\lambda}}\right|}{\beta_{\Psi\lambda_\star}^{1/4} \cdot \sqrt{\Delta E}}; \rightarrow \Delta E \sim \frac{\left|\sqrt{\Psi_{\lambda}}\right|^2}{\beta_{\gamma}^{4/5} \cdot \sqrt{\beta_{\Psi\lambda_\star}}};$$

$$\text{Since: } E_{\Psi\lambda_\star} \text{ with big degree of accuracy is: } \beta_{\Psi\lambda_\star} \text{ that: } \Delta E \sim \beta_{\Psi\lambda_\star} - \beta_{\Psi} \sim \frac{\left|\sqrt{\Psi_{\lambda}}\right|^2}{\beta_{\gamma}^{4/5} \cdot \sqrt{\beta_{\Psi\lambda_\star}}}; \rightarrow$$

$$\Delta E = 4.617852885 \cdot 10^{-3} \text{erg}; \rightarrow \ \beta_{\Psi} \sim \beta_{\Psi\lambda_\star} - 4.617852885 \cdot 10^{-3} = 0.345419136 \text{ erg} \rightarrow$$

$$\rightarrow \text{full energy of the higgs elementary particle on output from } r_{\mu} \rightarrow \text{cross} - \text{over}.$$

Equation of the energy of the higgs quantum – sub - particle in r_{μ} → cross - over:

$$\beta_{\Psi} = \frac{\beta_{\Psi\lambda_\star}}{\frac{\sqrt{\frac{C_{\lambda\star}}{C_0}}}{\sqrt{1 - \frac{C_{\lambda\star}^2}{C_0^2}}} \cdot \beta_{\Psi_\star}^{1/4} \cdot \sqrt{F_{\gamma} F_{\Psi}} - 1}; \rightarrow \left| \begin{matrix} \text{we shall remind that equation of the energy reversible in} \\ r_{\mu} \rightarrow \text{cross} - \text{over}; \\ F_{\gamma} = \frac{1}{2\pi}; \ F_{\Psi} = \frac{2\pi_\star}{2\pi}; \rightarrow \text{factor of the geometry of the} \\ \text{higgs elementary particle}; \\ \beta_{\Psi_\star} = 0.345151024 \text{ erg} \rightarrow \text{energy rest of the} \\ \text{higgs elementary particle}; \end{matrix} \right|$$

From its equation we shall define value of the quasilight kinetic speed of the higgs field quantum:

$$\frac{\sqrt{\frac{C_{\lambda\star}}{C_0}}}{\sqrt{1 - \frac{C_{\lambda\star}^2}{C_0^2}}} \sim \frac{1 + \frac{\beta_{\Psi\lambda_\star}}{\beta_{\Psi}}}{\beta_{\Psi_\star}^{1/4} \cdot \sqrt{F_{\gamma} F_{\Psi}}} = 16.49981241; \rightarrow \frac{C_{\lambda\star}}{C_0} \sim 0.99816509; \ \frac{C_{\lambda\star}}{\varsigma_0} = \frac{C_{\lambda\star}}{C_0} \cdot X =$$

$$= 1.08132158 \cdot 10^{-14};$$

From equation of the full energy shall define deflection of the full energy from energy rest of the higgs quantum:

$$E_{\Psi\lambda_\star} =$$

$$\frac{\beta_{\Psi\lambda_\star}}{1-\frac{\sqrt{\frac{C_{\lambda_\star}}{C_0}}}{\sqrt{1-\frac{C^2_{\lambda_\star}}{C_0^2}}}\cdot\beta^{1/4}_{\Psi\lambda_\star}\cdot\sqrt{F_\gamma F_\Psi}} \sim \beta_{\Psi\lambda_\star}\cdot 1.000000041 = 0.350037003\ \text{erg; where} \left\{\begin{array}{c} F_\gamma = \alpha^{5/11}\cdot\gamma^{6/11} \\ F_\Psi = \frac{2\pi_\star}{2\pi} \\ \beta_{\Psi\lambda_\star} = 0.350036989\ \text{erg}\end{array}\right\}$$

Full energy of the higgs quantum is deviate from energy rest on very small value. This deflection we shall be necessary for calculation wave parameters of the higgs quantum:

$$\Delta E = E_{\Psi\lambda_\star} - \beta_{\Psi\lambda_\star} = \beta_{\Psi\lambda_\star}\cdot 0.000000041 = 1.435151655\cdot 10^{-8}\text{erg};\ \sqrt{\Delta E} = 1.197978153\cdot 10^{-4};$$

Wave parameters of the higgs quantum: 1/ wave radius – vector of the higgs quantum:

$$r_\lambda = \frac{\sqrt{\Psi_\lambda}}{\left(1-\frac{C^2_{\lambda_\star}}{Ç_0^2}\right)^2\cdot\sqrt{\Delta E}} \sim \sqrt{\frac{\Psi_\lambda}{\Delta E}} = \frac{\left|\sqrt{\Psi_\lambda}\right|}{\beta^{1/4}_{\Psi\lambda_\star}\cdot\sqrt{\Delta E}} = 5.418900204\cdot 10^{-13}\text{см};$$

2/ internal radius of the higgs quantum:

$$r_0 = \sqrt{\frac{\Psi_\lambda}{\Delta E}} \sim r_\lambda = 5.418900204\cdot 10^{-13}\text{см};$$

3/ internal moment of the impulse of the higgs quantum:

$$\hbar_{\Psi\lambda_\star} = \frac{\sqrt{\Psi_\lambda\cdot E_{\Psi\lambda_\star}}}{Ç_0} = \frac{\left|\sqrt{\Psi_\lambda}\right|\cdot\sqrt{E_{\Psi\lambda_\star}}}{\beta^{1/4}_{\Psi\lambda_\star}\cdot Ç_0} \sim \frac{\left|\sqrt{\Psi_\lambda}\right|\cdot\beta^{1/4}_{\Psi\lambda_\star}}{Ç_0} = 1.397120562\cdot 10^{-41}\text{erg}\cdot\text{s};$$

4/ internal frequency of the rotation of the higgs quantum:

$$\omega_0 = \frac{\Delta E}{\hbar_{\Psi\lambda_\star}} = 1.027221053\cdot 10^{33}\text{s}^{-1};$$

5/ frequency of the oscillation of the wave of the higgs quantum:

$$\omega = \frac{Ç_0}{r_\lambda} = 5.073083181\cdot 10^{36}\ \text{s}^{-1};$$

6/ internal speed of the rotation of the higgs quantum:

$$V_0 = \frac{\sqrt{\Psi_\lambda\cdot\Delta E}}{\hbar_{\Psi\lambda_\star}} = \omega_0\cdot r_0 = 5.566408372\cdot 10^{20}\,\frac{\text{см}}{\text{s}};$$

7/ mass of the higgs quantum:

$$m_{\Psi\lambda_\star} = \frac{E_{\Psi\lambda_\star}}{Ç_0^2} = 4.631777266\cdot 10^{-50}\text{gr};$$

8/ square moment of the energy of the higgs quantum:

$$\Psi_\lambda = m \cdot \omega_0^2 \cdot r_0^4 = 4.214248124 \cdot 10^{-33} \text{erg} \cdot \text{см}^2;$$

Shall define initial kinetic speed of the higgs elementary particle generated by higgs quantum in $r_\mu \to \text{cross} - \text{over};$

$$\beta_\Psi = 0.345419136 \text{ erg} \to \text{full energy of the higgs elementary particle on output from } r_\mu \to \text{crossing};$$

Equation of the full energy of the higgs elementary particle:

$$\beta_\Psi = \frac{\beta_{\Psi_\star}}{1 - \frac{\sqrt{\frac{V_{\Psi_0}}{C_0}}}{\sqrt{1 - \frac{V_{\Psi_0}^2}{C_0^2}}} \beta_{\Psi_\star}^{1/4} \cdot \sqrt{F_\gamma F_\Psi}}; \begin{cases} \frac{1 - \frac{\beta_{\Psi_\star}}{\beta_\Psi}}{\beta_{\Psi_\star}^{1/4} \cdot \sqrt{F_\gamma F_\Psi}} = \frac{\sqrt{\frac{V_{\Psi_0}}{C_0}}}{\sqrt{1 - \frac{V_{\Psi_0}^2}{C_0^2}}} = 6.361001862 \cdot 10^{-3}; \ \frac{\mathbf{V_{\Psi_0}}}{\mathbf{C_0}} = \mathbf{4.19 \cdot 10^{-5}}; \\ \beta_\Psi = 0.345419136; \ \beta_{\Psi_\star} = 0.345151024 \text{ erg}; \ F_\gamma = \frac{1}{2\pi}; \ F_\Psi = \frac{2\pi_\star}{2\pi}; \end{cases}$$

$$V_{\Psi_0} = 1247813.422 \ \frac{\text{см}}{s} = 12.47813422 \ \frac{\text{км}}{s};$$

$$\Delta E = \beta_\Psi - \beta_{\Psi_\star} = 2.68112 \cdot 10^{-4} \text{erg} \to \text{kinetic energy of the higgs el. particle on output from } r_\mu \to \text{crossing};$$

$$\sqrt{\Delta E} = 0.016374125;$$

Shall define wave parameters of the higgs elementary particle:

1/ wave radius – vector of the higgs particle:

$$r_\lambda = \frac{\sqrt{\Psi_\lambda}}{\left(1 - \frac{V_{\Psi_0}^2}{C_0^2}\right)^2 \cdot \sqrt{\Delta E}} = \frac{\left|\sqrt{\Psi_\lambda}\right|}{\left(1 - \frac{V_{\Psi_0}^2}{C_0^2}\right)^2 \cdot \beta_{\Psi_\star}^{1/4} \cdot \sqrt{\Delta E}} = 3.978580225 \cdot 10^{-15} \text{см};$$

2/ internal radius of the higgs particle:

$$r_0 = \sqrt{\frac{\Psi_\lambda}{\Delta E}} = r_\lambda \cdot \left(1 - \frac{V_{\Psi_0}^2}{C_0^2}\right)^2 = r_\lambda \cdot 0.999999996 \sim r_\lambda = 3.978580225 \cdot 10^{-15} \text{см};$$

3/ internal moment of the impulse of the higgs particle:

$$\hbar_{\Psi_\star} = \frac{\sqrt{\Psi_\lambda \cdot \beta_\Psi}}{C_0} = \frac{\left|\sqrt{\Psi_\lambda}\right| \cdot \sqrt{\beta_\Psi}}{\beta_{\Psi_\star}^{1/4} \cdot C_0} = 1.285653129 \cdot 10^{-27} \text{erg} \cdot s;$$

4/ internal frequency of the rotation of the higgs particle:

$$\omega_0 = \frac{\Delta E}{\hbar_{\Psi_\star}} = 2.08541475 \cdot 10^{23} s^{-1} ;$$

5/ frequency of the oscillation of the wave of the higgs particle:

$$\omega = \frac{C_0}{r_\lambda} = 7.485270686 \cdot 10^{24} s^{-1} ;$$

6/ internal speed of the rotation of the higgs particle:

$$V_0 = \omega_0 \cdot r_0 = \frac{\sqrt{\Psi_\lambda \cdot \Delta E}}{\hbar_{\Psi_\star}} = 829698988.5 \ \frac{\text{см}}{s} ;$$

7/ mass of the higgs particle:

$$m_{\Psi_\star} = \frac{\beta_\Psi}{C_0^2} = 3.894710074 \cdot 10^{-22} gr ;$$

8/ square moment of the energy of the higgs particle:

$$\Psi_\lambda = m_{\Psi_\star} \cdot \omega_0^2 \cdot r_0^4 = 4.243971849 \cdot 10^{-33} erg \cdot \text{см}^2 ;$$

Second $r_\mu \rightarrow$ cross – over. Higgs elementary particle radiate surplus of the kinetic energy in $r_\mu \rightarrow$ cross – over and input into planetary – orbital space – energy of our universe as higgs field quantum.

For determination of the kinetic speed and accordingly full energy of the higgs elementary particle required for entering in $r_\mu \rightarrow$ cross – over use equations of the wave radius – vector, trigonometric identity and moments of the energy of the field $r_\mu \rightarrow$ cross – over, as well as equation of the full energy for higgs elementary particle.

1/ geometry of the space – energy of the $r_\mu \rightarrow$ cross-over higgs elementary particle to higgs quantum:

$$\sqrt{\frac{R_{\lambda S_\star}}{r_{nops}}} = \left(\frac{r_\lambda^I}{r_{\lambda o}}\right)^2 ; \text{where} \begin{cases} r_\lambda^I = \sqrt{\frac{\Psi_\lambda}{E}} \rightarrow \text{wave radius of the el. partical in hatched reference system} \\ r_{\lambda o} = \Psi_{\sqrt{\lambda}}^2 \cdot \beta_{\Psi_\star} \rightarrow \text{own wave radius of the el. partical in system rest} \end{cases}$$

$$\sqrt{\frac{R_{\lambda S_\star}}{r_{nops}}} = \left(\frac{\sqrt{\frac{\Psi_\lambda}{E}}}{\Psi_{\sqrt{\lambda}}^2 \cdot \beta_{\Psi_\star}}\right)^2 ; \rightarrow \left(\frac{R_{\lambda S_\star}}{r_{nops}}\right)^{1/4} = \sqrt{\frac{\beta_{\Psi_\star}}{E}} ; \rightarrow$$

$$E = \beta_{\Psi_\star} \cdot \sqrt{\frac{r_{nops}}{R_{\lambda S_\star}}}\ ; \left|\begin{matrix}\text{where: } E = \beta_{\Psi\lambda_\star} \to \text{that follows} \\ \text{from cosmologic equation of the} \\ \text{elementary particle}\end{matrix}\right| \to$$

$$\beta_\Psi = \sqrt{\frac{\gamma}{\alpha}} \cdot \frac{1}{\beta_\gamma^2} \cdot \left(\frac{\mathbb{N}_{os}}{\mathbb{N}_{op}}\right)^2 \cdot \sqrt{\frac{r_S}{r_{nop}}} \cdot \left(\frac{r_e}{r_\gamma}\right)^2 ; \to \frac{\beta_{\Psi\lambda_\star}}{\beta_{\Psi_\star}} = \sqrt{\frac{r_{nops}}{R_{\lambda S_\star}}};$$

2/ field equation of the moments of the energy of the minimum r_μ → cross-over higgs elementary particle to higgs field quantum:

$$2\pi\alpha^{5/11}\gamma^{6/11} \cdot \Psi_{\lambda_\star}^2 \cdot (\Delta E)^2$$

$$= 2\pi\alpha^{5/8}\gamma^{3/8} \cdot \sqrt{\Psi_{\lambda S_\star}\beta_\gamma \mathbb{N}_{S_\star}}\ ; \left\{\begin{matrix}\Delta E_{min} \to \text{minimum kinetic energy of the} \\ \text{elementary particle for } r_\mu \to \text{cross} - \text{over} \\ \text{into higgs field quantum;} \\ \beta_\gamma \mathbb{N}_{S_\star} = \frac{1}{R_{\lambda S_\star}} = 2.485092351 \cdot 10^{-16} \text{erg} \\ \text{graviton of the super} - \text{giant star;}\end{matrix}\right.$$

$$\frac{\left|\Psi_{\lambda_\star}^2\right| \cdot (\Delta E_{min})^2}{\beta_{\Psi\lambda_\star}^{7/4}}$$

$$= \left(\frac{\alpha}{\gamma}\right)^{\frac{15}{88}}$$

$$\cdot \frac{\left|\sqrt{\Psi_{\lambda S_\star}}\right| \cdot \sqrt{\beta_\gamma \mathbb{N}_{S_\star}}}{\left(\beta_\gamma \mathbb{N}_{S_\star}\right)^{1/4}} ; \left\{\begin{matrix}\Delta E_{min} = E - \beta_{\Psi_\star} = \left(\frac{\alpha}{\gamma}\right)^{\frac{15}{176}} \cdot \beta_{\Psi\lambda_\star}^{7/8} \cdot \left(\frac{1}{R_{\lambda S_\star}}\right)^{1/8} \\ \boldsymbol{\Delta E_{min} = \beta_{\Psi\lambda_\star} - \beta_{\Psi_\star} = 4.885757327 \cdot 10^{-3} erg} \\ E = \beta_{\Psi_\star} + \Delta E_{min} = 0.350036781 \text{ erg}; \to E = \beta_{\Psi\lambda_\star} \\ \Delta_\star = \frac{\Delta E_{min}}{E} = 0.013957839\ ;\end{matrix}\right.$$

Shall define minimum kinetic speed of the higgs particle for minimum r_μ → cross-over to higgs field quantum:

$$\Delta_\star = 0.013957839 = \frac{\sqrt{\frac{V_{кр}}{C_0}}}{\sqrt{1 - \frac{V_{кр}^2}{C_0^2}}} \cdot \beta_{\Psi_\star}^{1/4} \cdot \sqrt{F_\gamma F_\Psi}\ ; \to \frac{V_{кр\,min}}{C_0} = 0.013081975;$$

Shall define critical wave radius of the higgs elementary particle in minimum r_μ → cross - over:

$$r_{\lambda cr2} = \frac{\sqrt{\Psi_\lambda}}{\left(1 - \frac{V_{кр}^2}{C_0^2}\right)^2 \cdot \sqrt{\Delta E_{min}}} = \frac{\left|\sqrt{\Psi_\lambda}\right|}{\left(1 - \frac{V_{кр}^2}{C_0^2}\right)^2 \cdot \beta_{\Psi_\star}^{1/4} \cdot \sqrt{\Delta E_{min}}} = 9.32328499 \cdot 10^{-16} \text{см} =$$

$$\left|\begin{matrix}0.976185077 \cdot r_\mu \\ \text{where: } r_\mu = \beta_\gamma^{2/5}\end{matrix}\right|.$$

Shall define speed of the minimum r_μ → cross – over higgs particle into higgs quantum:

$$E = \beta_{\Psi\lambda_\star} = 0.350036781\ \text{erg}\,; \rightarrow\ \beta_{\Psi\lambda_\star} = \frac{E}{\frac{\sqrt{\frac{C_{\lambda_\star}}{C_0}}}{\sqrt{1-\frac{C_{\lambda_\star}^2}{C_0^2}}}\cdot \beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi}-1}; \rightarrow$$

$$\frac{\sqrt{\frac{C_{\lambda_\star}}{C_0}}}{\sqrt{1-\frac{C_{\lambda_\star}^2}{C_0^2}}} = \frac{\frac{E}{\beta_{\Psi\lambda_\star}}+1}{\beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi}} = \frac{2}{\beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi}} = 16.39025314\,; \rightarrow \frac{C_{\lambda_\star}}{C_0} = 0.998140507;$$

Speed of the r_μ → cross - over equal quasilight speed of the higgs quantum in permissible limit of the deflections of the physical value of the real world.

From equation of the critical wave radius define limits of the kinetic speeds, in which possible r_μ → cross - over higgs elementary particle into higgs field quantum with radiation of the surplus kinetic energy:

$$r_{\lambda cr2} = 0.976185077\cdot r_\mu = 9.32328499\cdot 10^{-16} = \frac{\left|\sqrt{\Psi_\lambda}\right|}{\left(1-\frac{V_c^2}{C_0^2}\right)^2\cdot\beta_{\Psi_\star}^{1/4}\cdot\sqrt{\Delta E}}; \rightarrow$$

$$\left(1-\frac{V_c^2}{C_0^2}\right)^{-\frac{7}{2}}\cdot\left(\frac{V_c}{C_0}\right)^{-\frac{1}{2}}\cdot\left(1-\frac{\sqrt{\frac{V_c}{C_0}}}{\sqrt{1-\frac{V_c^2}{C_0^2}}}\cdot\beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi}\right) = \frac{r_{\lambda кр}^2\cdot\beta_{\Psi_\star}^{7/4}\cdot\sqrt{F_\gamma F_\Psi}}{\left|\sqrt{\Psi_\lambda}\right|^2}; \rightarrow$$

$$\left(1-\frac{V_c^2}{C_0^2}\right)^{-\frac{7}{2}}\cdot\left(\frac{V_c}{C_0}\right)^{-\frac{1}{2}}\cdot\left(1-\frac{\sqrt{\frac{V_c}{C_0}}}{\sqrt{1-\frac{V_c^2}{C_0^2}}}\cdot 0.12202374\right)-8.626188251 = 0\,;$$

$$\left(\frac{V_{max}}{C_0}\right) = 0.671819524\,;\ \left\{\begin{array}{c} \Delta_{max} = 0.135026675;\ \ E_{max} = \frac{\beta_{\Psi_\star}}{1-\Delta_{max}} = 0.39903083\ \text{erg}; \\ E_{max}\cdot\Delta_{max} = \Delta E_{max} = 0.053879806\ \text{erg};\ \frac{\Delta E_{max}}{\bar\beta_p} = 35.84263887; \\ r_{\lambda кр} = 9.323285125\cdot 10^{-16}\text{см}; \\ \text{where: } \bar\beta_p = \gamma\cdot(\beta_p+\beta_e) = 1.503232127\cdot 10^{-3}\text{erg}; \rightarrow \text{energy rest} \\ \text{of the proton for terrestrial watcher:} \end{array}\right\}$$

$$\left(\frac{V_{maxmax}}{C_0}\right) = 0.99258276; \begin{Bmatrix} \Delta_{maxmax} = 0.99999666;\ E_{maxmax} = \dfrac{\beta_{\Psi_\star}}{1-\Delta_{maxmax}} = 103475.2234\ \text{erg}; \\ E_{maxmax}\cdot\Delta_{maxmax} = \Delta E_{maxmax} = 103474.8782\ \text{erg}; \\ \dfrac{\Delta E_{maxmax}}{\bar\beta_p} = 68834929.98;\ r_{\lambda\text{кр}} \sim 9.271546882\cdot 10^{-16}\text{см} \end{Bmatrix}$$

Limits of the change the kinetic energy of the higgs elementary particle under $r_\mu \to$ cross - over in higgs field quantum with radiation of the surplus energy, that is to say zone of unstable of the higgs particle:

$$\mathbf{\Delta E_{cr}} = \begin{Bmatrix} \mathbf{\Delta E_{min}} = \mathbf{\Delta\beta_\star} = \mathbf{4.885757327\cdot 10^{-3}} \div \mathbf{\Delta E_{max}} = \mathbf{0.053879806}\ \text{erg} \\ \mathbf{3.250168247\cdot\bar\beta_p} \div \mathbf{35.84263887\cdot\bar\beta_p} \end{Bmatrix}$$

$$\Delta E_{crmaxmax} = \begin{Bmatrix} \Delta E_{maxmax} = 103474.8782 \div \infty\ \text{erg} \\ 68834929.98\cdot\bar\beta_p \div \infty \end{Bmatrix}$$

Zone of the radiation of the surplus energy or unstable of the higgs elementary particle under $r_\mu \to$ cross - over into higgs field quantum:

$$\mathbf{\Delta E_\lambda} = \mathbf{\Delta E_{cr}} - \mathbf{\Delta\beta_\star} = \{\mathbf{0} \div \mathbf{0.048994048}\ \text{erg}\}$$

On energy of the radiation we can judge about existence of the higgs elementary particle, that is to say radiation of the energy within $\Delta E_\lambda \to$ there is passport of the higgs particle. In zone of the radiation higgs elementary particle unstable – radiates surplus energy and cross – over to higgs quantum.

Speed of the maximum $r_\mu \to$ cross - over of the elementary particle in point: $\frac{V_{max}}{C_0} = 0.671819524$

$$\beta_{\Psi\lambda_\star} = \frac{E_{max}}{\dfrac{\sqrt{\frac{V_\lambda}{C_0}}}{\sqrt{1-\frac{V_\lambda^2}{C_0^2}}}\cdot\beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi} - 1};\ \to \frac{\sqrt{\frac{V_\lambda}{C_0}}}{\sqrt{1-\frac{V_\lambda^2}{C_0^2}}} = \frac{1+\dfrac{E_{max}}{\beta_{\Psi\lambda_\star}}}{\beta_{\Psi_\star}^{1/4}\cdot\sqrt{F_\gamma F_\Psi}} = 17.53731108;$$

$$\frac{V_\lambda}{C_0} = 0.998375608;\ \frac{V_\lambda}{C_{\lambda_\star}} = 1.000211145;$$

$$\to \left|\begin{matrix} \text{higgs field quantum output from } r_\mu \to \text{cross} - \text{over} \\ \text{with quasilight speed: } V_\lambda = C_{\lambda_\star}\cdot 1.000211145 \end{matrix}\right|$$

We shall calculate minimum and maximum speed of the proton in cyclotron to reach energy of the radiation of the higgs elementary particle.

$$\bar\beta_p = 1.503232127\cdot 10^{-3}\text{erg} \to \text{energy rest of the proton for terrestrial watcher}$$

$$\beta_p = 1.457604579\cdot 10^{-3}\text{erg} \to \text{energy rest of the astronomical proton}$$

$$\Delta E_{min} = \Delta\beta_\star = 4.885757327\cdot 10^{-3}\text{erg} = 3.250168247\cdot\bar\beta_p$$

Under not springy collision of the proton with higgs elementary particle all kinetic energy of the proton moves over to energy of the higgs elementary particle.

Full energy and speed of the proton in cyclotron:

1) minimum $r_\mu \rightarrow$ cross – over:

$$E_p = E_k + \bar{\beta}_p;\ E_k = \Delta\beta_\star = 4.885757327 \cdot 10^{-3} erg \rightarrow \text{kinetic energy of the proton}$$

$$E_p = \bar{\beta}_p \cdot (3.250168247 + 1) = 4.250168247 \cdot \bar{\beta}_p = 6.388989454 \cdot 10^{-3} erg$$

$$E_p = \frac{\bar{\beta}_p}{1 - \frac{\sqrt{\frac{V_p}{C_0}}}{\sqrt{1-\frac{V_p^2}{C_0^2}}} \cdot \beta_p^{1/4} \cdot \sqrt{\gamma}};\quad \frac{\sqrt{\frac{V_p}{C_0}}}{\sqrt{1-\frac{V_p^2}{C_0^2}}} = \frac{1-\frac{\bar{\beta}_p}{E_p}}{\beta_p^{1/4} \cdot \sqrt{\gamma}} = 3.855004071;\ \rightarrow \frac{\mathbf{V_{pmin}}}{\mathbf{C_0}} = \mathbf{0.966920849};$$

2) maximum $r_\mu \rightarrow$ cross – over:

$$E_k = \Delta E_{max} = 35.84263887 \cdot \bar{\beta}_p;\quad E_p = E_k + \bar{\beta}_p = 36.84263887 \cdot \bar{\beta}_p; \rightarrow$$

$$\frac{\sqrt{\frac{V_p}{C_0}}}{\sqrt{1-\frac{V_p^2}{C_0^2}}} = \frac{1-\frac{\bar{\beta}_p}{E_p}}{\beta_p^{1/4} \cdot \sqrt{\gamma}} = 4.904269953; \rightarrow \frac{\mathbf{V_{pmax}}}{\mathbf{C_0}} = \mathbf{0.979427646};$$

Speed of the proton to cause $r_\mu \rightarrow$ cross - over of the higgs elementary particle into higgs field quantum it is found within: $\frac{V_p}{C_0} = \{\mathbf{0.966920849} \div \mathbf{0.979427646}\}$