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Motivation Interstellar Flight for Person in Space – Energy of Our Universe

Key words: Interstellar flight, inter-galactic flight in real space-energy of our universe, hyper-relativity brake radiation of the elementary particles, r_{μ} – passage, gigantic energy of the gravitational field, accumulated into black holes of the atoms, wave radius – vector, Formula of the Ciolkovsky, springy collision atom gas with reflector of the jet engine of the rocket, reactive motion of the star-flight, space – energy of the universe, differential equation of the motion with changeable mass rest, quasilight speed, average consumption of the fuel in unit, current consumption.

Annotation: Use of energy of a super relativistic braking radiation of elementary particles in - passage. At reaching - passage elementary particles the annihilation in eta-muons or photons. All total energy of elementary particles passes in super heavy radiation of photons of light. If to learn to use this large energy of radiation it is possible to create a drive on elementary particles for intergalactic flights in real space - energy of our Universe. That is we should learn to use the large energy of a gravitational field accumulated in black holes of atoms of a crystal. In this super-power field of a particle can be dispersed to super relativistic velocities and enter in - passage. It seems, aliens, on the starprobe vehicles are able to do it, making the intergalactic traveling. Theories are, only it is necessary to realize them practically.

We are using energy of the hyper-relativity brake radiation of the elementary particles in r_{μ}- passage. At achievement of the r_{μ} - passage the elementary particles annihilate in eta-muons-photons. All full energy of the elementary particles is passage in super-heavy radiation photons of the light. If learn using this gigantic energy of the radiation, that possible create engine on elementary particles for inter-galactic flight in real space-energy of our universe. Possible in nature there is such minerals or crystals, getting through which elementary particles acceleration before condition of the r_{μ} - passage. That is to say we should learn use gigantic energy of the gravitational field, accumulated into black holes of the atoms of the crystal. Exactly in this hyper powerful field particles can speed up to hyper-relativity speeds and fall into r_{μ}- passage. Seems this can to do extraterrestrials on their own star-flights making interstellar and inter-galactic journeys. Theories there is, only need practically their realize.

We shall produce approx calculation (with it is enough high degree of accuracy) of the energy of the brake radiation of the elementary particles.

Potential energy of the gravitational field accumulated into elementary particle or atom:

$$\beta_{\Psi_{\star}} = \frac{1}{\Psi^{2}_{\sqrt{\lambda}} \cdot \beta_{\gamma}\mathbb{N}_{ops}}; \quad \text{for our astronomical proton:} \rightarrow \beta_{\Psi_{\star}} \sim 10^{27} \text{эрг!}$$

Equation of the energy of the elementary particle:

$$E = \frac{E_o}{1-\Delta_\Psi} = \frac{E_o}{1 - \frac{\sqrt{\frac{V}{C_0}}}{\sqrt{1-\left(\frac{V}{C_0}\right)^2}} \cdot E_0^{\frac{1}{4}} \cdot \sqrt{F_\gamma F_\Psi}}$$

Elementary particle into r_μ – passage radiation all its kinetic energy to condition of the energy rest and becomes photon-eta-muon with energy: $E = m_0 C_0^2$.

$$\Delta_{\Psi_{кр}} \sim 1; \rightarrow \frac{\sqrt{\frac{V}{C_0}}}{\sqrt{1-\frac{V^2}{C_0^2}}} \cdot E_0^{\frac{1}{4}} \cdot \sqrt{F_\gamma F_\Psi} \sim 1; \rightarrow \sqrt{1-\frac{V^2}{C_0^2}} \sim E_0^{\frac{1}{4}} \cdot \sqrt{F_\gamma F_\Psi};$$

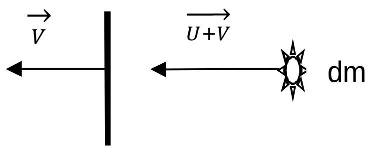
Wave radius – vector of the elementary particle into r_μ – passage:

$$r_\lambda = r_\mu = \beta_\gamma^{2/5} = \frac{\sqrt{\Psi_\lambda}}{\left(1-\frac{V^2}{C_0^2}\right)^2 \cdot \sqrt{\Delta E}}; \rightarrow \Delta E = \frac{\left|\sqrt{\Psi_\lambda}\right|^2}{\left(1-\frac{V^2}{C_0^2}\right)^4 \cdot \sqrt{E_0} \cdot \beta_\gamma^{4/5}} \sim \frac{\left|\sqrt{\Psi_\lambda}\right|^2}{\left(F_\gamma F_\Psi\right)^4 \cdot E_0^{5/2} \cdot \beta_\gamma^{4/5}};$$

$$\frac{E}{E_0} = 1 + \frac{\Delta E}{E_0} \sim \frac{\Delta E}{E_0} = \frac{1}{1-\Delta\Psi_{КР}} \sim \frac{\left|\sqrt{\Psi_\lambda}\right|^2}{\left(F_\gamma F_\Psi\right)^4 \cdot E_0^{7/2} \cdot \beta_\gamma^{4/5}};$$

While we can only primitive to use heat energy a gases for moving the rocket within space-energy of the solar system.

1. Formula of the Ciolkovsky – springy collision atom gas with reflector of the jet engine of the rocket:



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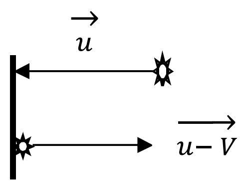


$$\text{jet power: } \mathcal{F} = \frac{dp}{dT} = -\frac{dm \cdot (2u - V)}{dT}; \text{где } dp = dm \cdot (u - V) - u \cdot dm = dm \cdot (2u - V);$$

$$\text{general equation of power: } \mathcal{F} \cdot V \cdot dT = d(m \cdot V^2) = V^2 \cdot dm + 2mV \cdot dV;$$

$$\mathcal{F} = \frac{V \cdot dm}{dT} + \frac{2m \cdot dV}{dT} = -\frac{dm}{dT} \cdot (2u - V); \rightarrow V \cdot dm + 2m \cdot dV = -dm \cdot (2u - V);\; 2m \cdot dV = -2u \cdot dm;$$

$$dV = -u \cdot \frac{dm}{m}; \rightarrow V = u \cdot Ln\frac{m_o}{m}; \; V_o = 0; \rightarrow \text{formula of the Ciolkovsky}$$

We shall build model of the reactive motion of the star-flight founded on principle of the brake radiation photons by elementary particles into r_μ – passage. Impulse of the radiation photon is in size and opposite on direction impulse of the return photon, exactly so, as in theories of the interaction. If star-flight uses own fuel or own source of the energy of the elementary particles, that then we can form relativity impulse differential equation of the star-flight. Rocket as a whole this piece of the matter but signifies mass of the rocket comply with transformation of the Einstein. Since part of the mass rest of the rocket this fuel that signifies and mass rest subject to change, that is to say differentiation:

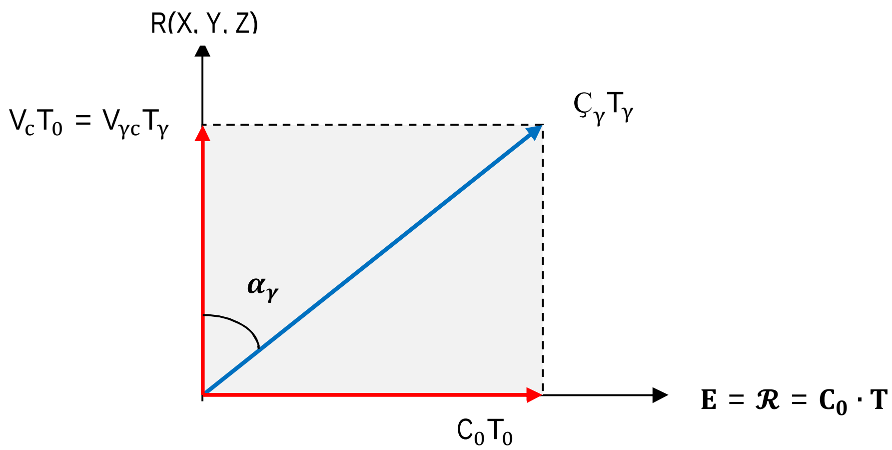
$$m = \frac{M_0}{\sqrt{1-\frac{V^2}{C_0^2}}}\,; \rightarrow dm = d\left(\frac{M_0}{\sqrt{1-\frac{V^2}{C_0^2}}}\right) = \frac{dM_0}{\sqrt{1-\frac{V^2}{C_0^2}}} + \frac{M_0\cdot\frac{V}{C_0^2}\cdot dV}{\left(1-\frac{V^2}{C_0^2}\right)^{3/2}} \rightarrow \left[\begin{matrix}\text{full differential of the}\\ \text{mass}\end{matrix}\right]$$

But first detailed shall consider space-energy of our universe.

2. We shall mark through $R(X, Y, Z)$ → three-dimensional space of our universe, in which exist all objects microcosm and macrocosm of the universe. Other coordinates this energy space of the universe: → $E = C_0 \cdot p$; where p → impulse space – energy of our universe ; but from general and special interpretation of the universe we know, that: $p = T$. impulse of the matter of the universe is time of its existence in universe. → one of the main postulate, on which is built theory of the universe!

So: $\mathbf{E = C_0 \cdot p = C_0 \cdot T = \mathcal{R}}$.

$E = \mathcal{R}$; → energy of the matter of the universe equal length of space – energy of the universe!



$$(\text{Ç}\text{Ç}_\gamma T_\gamma)^2 = (V_cT_0)^2 + (C_0T_0)^2\,;\ \ T_\gamma = T_0\cdot\sqrt{1-\frac{V_c^2}{C_0^2}}\,; \rightarrow \frac{\text{Ç}_\gamma^2}{C_0^2}\cdot\left(1-\frac{V_c^2}{C_0^2}\right) = \frac{V_c^2}{C_0^2} + 1\,;$$

$$\frac{\text{Ç}_\gamma^2}{C_0^2} - 1 = \frac{V_c^2}{C_0^2}\cdot\left(1+\frac{\text{Ç}_\gamma^2}{C_0^2}\right); \rightarrow \frac{V_c^2}{C_0^2} = \frac{\frac{\text{Ç}_\gamma^2}{C_0^2}-1}{\frac{\text{Ç}_\gamma^2}{C_0^2}+1}; \rightarrow \frac{V_c}{C_0} = \sqrt{\frac{\frac{\text{Ç}_\gamma^2}{C_0^2}-1}{\frac{\text{Ç}_\gamma^2}{C_0^2}+1}} = \sqrt{\frac{1-\frac{C_0^2}{\text{Ç}_\gamma^2}}{1+\frac{C_0^2}{\text{Ç}_\gamma^2}}};$$

V_c → [speed at achievement which star – flight together with astronauts on board enters in hyperspace – energy of our universe;]

$V_{\gamma c}$; T_γ → [accordingly speed and time of the moving the star – flight in hyperspace – energy of our universe]

$$V_cT_0 = V_{\gamma c}T_\gamma = V_{\gamma c}T_0 \cdot \sqrt{1-\frac{V_c^2}{C_0^2}}; \to V_c = V_{\gamma c} \cdot \sqrt{1-\frac{V_c^2}{C_0^2}}; \to \frac{V_{\gamma c}}{C_0} = \frac{\frac{V_c}{C_0}}{\sqrt{1-\frac{V_c^2}{C_0^2}}};$$

$$\sqrt{1-\frac{V_c^2}{C_0^2}} = \frac{\sqrt{2}\cdot\frac{C_0}{Ç_\gamma}}{\sqrt{1+\frac{C_0^2}{Ç_\gamma^2}}} = \frac{\sqrt{2}\cdot X}{\sqrt{1+X^2}}\text{ ; где } X = \frac{C_0}{Ç_{\gamma 0}} = \text{const} \to \text{world constant of the universe;}$$

$$\text{then}: \frac{V_{\gamma c}}{C_0} = \frac{Ç_\gamma}{\sqrt{2}\cdot C_0}\cdot\sqrt{1-\frac{C_0^2}{Ç_\gamma^2}}\text{ ; } V_{\gamma c} = \frac{Ç_\gamma}{\sqrt{2}}\cdot\sqrt{1-\frac{C_0^2}{Ç_\gamma^2}} = \frac{Ç_{\gamma 0}}{\sqrt{2}}\cdot\sqrt{1-X^2} \sim \frac{Ç_{\gamma 0}}{\sqrt{2}} = 1.943874123\cdot 10^{24}\frac{\text{см}}{\text{sec}}!$$

$$T_\gamma = T_0\cdot\sqrt{1-\frac{V_c^2}{C_0^2}} = T_0\cdot\frac{\sqrt{2}\cdot X}{\sqrt{1+X^2}} \sim T_0\cdot X\cdot\sqrt{2};$$

$$\frac{V_C}{C_0} = \sqrt{\frac{1-\frac{C_0^2}{Ç_\gamma^2}}{1+\frac{C_0^2}{Ç_\gamma^2}}} = \sqrt{\frac{1-X^2}{1+X^2}} \sim 1-X^2; \quad \frac{V_c^2}{C_0^2} \sim 1-2\cdot X^2;$$

$$C_0T_0 \sim V_\gamma T_\gamma = r_{nop} = \frac{1}{\beta_\gamma \mathbb{N}_{op}} = 1.047970045\cdot 10^{18}\text{cm}; \to T_0 = 3.518951159\cdot 10^7\text{s} = 1.115852093\text{ y.}$$

$$T_\gamma = 5.391141497\cdot 10^{-7}\text{sec!}$$

$$C_0T_0 \sim V_\gamma T_\gamma = r_{nos} = \frac{1}{\beta_\gamma \mathbb{N}_{os}} = 1.425944131\cdot 10^{27}\text{cm}; \to T_0 = 1.518309374\cdot 10^9\,\textit{y}\text{ears;}$$

$$T_\gamma = 733.5578545\text{ c} = 12.22596424\text{ minutes!}$$

For example terrestrial watcher about one year observes what star-flight abandon limits space-energy of the star, but for astronauts will pass instant, less than one millionth second. Maximum galactic distance star-flight will pass for terrestrial watcher for one and a half billions years approximately, but for astronaut for 12 minutes!

3. Composition impulse differential equation of the motion for star-flight possessing own source of the energy of the elementary particles, that is to say equation with changeable mass rest:

$$\mathcal{F} = \frac{V\cdot dm + 2m\cdot dV}{dT} = -\frac{C_0\cdot dM_0}{\left(1-\Delta_{\Psi_{кр}}\right)\cdot dT}; \to V\cdot dm + 2m\cdot dV = -C_0\cdot\frac{dM_0}{1-\Delta_{\Psi_{кр}}};$$

$$\text{we shall mark}: \frac{1}{1-\Delta_{\Psi_{кр}}} = \mathcal{A}_\Psi; \text{ тогда}: V\cdot dm + 2m\cdot dV = -C_0\cdot\mathcal{A}_\Psi\cdot dM_0; \to$$

$$\frac{V\cdot dM_0}{\sqrt{1-\frac{V^2}{C_0^2}}}+M_0\cdot\frac{\frac{V^2}{C_0^2}\cdot dV}{\left(1-\frac{V^2}{C_0^2}\right)^{3/2}}+\frac{2M_0\cdot dV}{\sqrt{1-\frac{V^2}{C_0^2}}}=-C_0\cdot\mathcal{A}_\Psi\cdot dM_0\,;\rightarrow$$

$$\frac{V}{C_0}\cdot dM_0+M_0\cdot\frac{\frac{V^2}{C_0^2}\cdot d\left(\frac{V}{C_0}\right)}{1-\frac{V^2}{C_0^2}}+2M_0\cdot d\left(\frac{V}{C_0}\right)=-\mathcal{A}_\Psi\cdot dM_0\cdot\sqrt{1-\frac{V^2}{C_0^2}}\text{ ; we shall mark: }\frac{V}{C_0}=X\rightarrow$$

$$X\cdot dM_0+M_0\cdot\frac{X^2\cdot dX}{1-X^2}+2M_0\cdot dX=-\mathcal{A}_\Psi\cdot dM_0\cdot\sqrt{1-X^2}\,;\rightarrow$$

$$\frac{X^2\cdot dX}{(1-X^2)\cdot\left(\mathcal{A}_\Psi\cdot\sqrt{1-X^2}+X\right)}+\frac{2dX}{\mathcal{A}_\Psi\cdot\sqrt{1-X^2}+X}=-\frac{dM_0}{M_0}\,;\rightarrow$$

$$\int\limits_{I}\frac{X^2\cdot dX}{(1-X^2)\cdot\left(\mathcal{A}_\Psi\cdot\sqrt{1-X^2}+X\right)}+\int\limits_{II}\frac{2dX}{\mathcal{A}_\Psi\cdot\sqrt{1-X^2}+X}=-\int\frac{dM_0}{M_0}\text{ ; we shall solve it integral?}$$

$$I.\rightarrow\begin{bmatrix}X=\sin\alpha\\ dX=\cos\alpha\cdot d\alpha\end{bmatrix}\rightarrow\frac{(\sin\alpha)^2\cdot\cos\alpha\cdot d\alpha}{(\cos\alpha)^2\cdot(\mathcal{A}_\Psi\cdot\cos\alpha+\sin\alpha)}=\frac{(\tan\alpha)^2\cdot d\alpha}{\mathcal{A}_\Psi+\tan\alpha}\,;$$

$$II.\rightarrow\begin{bmatrix}X=\sin\alpha\\ dX=\cos\alpha\cdot d\alpha\end{bmatrix}\rightarrow\frac{2\cdot\cos\alpha\cdot d\alpha}{\mathcal{A}_\Psi\cdot\cos\alpha+\sin\alpha}=\frac{2\cdot d\alpha}{\mathcal{A}_\Psi+\tan\alpha}\,;$$

$$I.+II.=\frac{((\tan\alpha)^2+2)\cdot d\alpha}{\mathcal{A}_\Psi+\tan\alpha}\rightarrow\begin{bmatrix}\tan\alpha=Y\,;d\alpha\cdot(1+(\tan\alpha)^2)=dY\,;\\ d\alpha=\frac{dY}{1+Y^2}\end{bmatrix}\rightarrow\frac{(Y^2+2)\cdot dY}{(1+Y^2)\cdot(\mathcal{A}_\Psi+Y)}\rightarrow$$

$$\rightarrow dY\cdot\left(\frac{A+B\cdot Y}{1+Y^2}+\frac{C}{\mathcal{A}_\Psi+Y}\right)\,;\quad\text{where: }A,B,C\rightarrow\text{constant factors. Will find them.}\rightarrow$$

$$\rightarrow A=\frac{\mathcal{A}_\Psi}{1+\mathcal{A}_\Psi^2};\quad B=-\frac{1}{1+\mathcal{A}_\Psi^2};\quad C=\frac{2+\mathcal{A}_\Psi^2}{1+\mathcal{A}_\Psi^2};\rightarrow$$

$$\int I.+II.=\int dY\cdot\left(\frac{A+B\cdot Y}{1+Y^2}+\frac{C}{\mathcal{A}_\Psi+Y}\right)=A\cdot\arctan Y+\frac{B}{2}\cdot Ln(1+Y^2)+C\cdot Ln(\mathcal{A}_\Psi+Y)\,;\rightarrow$$

$$\tan\alpha=Y=\frac{X}{\sqrt{1-X^2}};\rightarrow\int I.+II.=A\cdot\arctan\frac{X}{\sqrt{1-X^2}}+\frac{B}{2}\cdot Ln\frac{1}{1-X^2}+C\cdot Ln\left(\mathcal{A}_\Psi+\frac{X}{\sqrt{1-X^2}}\right)$$

since: $\mathcal{A}_\Psi\gg 1$, that $A=B\sim 0\,;C\sim 1\,;\rightarrow$ with very big degree of accuracy ; $\rightarrow$

$$\rightarrow\int I.+II.\approx Ln\left(\mathcal{A}_\Psi+\frac{X}{\sqrt{1-X^2}}\right)=-\int\limits_{M_0}^{M}\frac{dM_0}{M_0}=Ln\frac{M_0}{M}\text{; initial conditions :}\rightarrow\begin{vmatrix}X=0\\ M=M_0\end{vmatrix}\rightarrow$$

$$C_\Psi+Ln\left(\mathcal{A}_\Psi+\frac{X}{\sqrt{1-X^2}}\right)\approx Ln\frac{M_0}{M};\rightarrow C_\Psi+Ln\mathcal{A}_\Psi=0;\ C_\Psi=-Ln\mathcal{A}_\Psi;\rightarrow$$

$$Ln\frac{M_0}{M} \approx Ln\left(\mathcal{A}_\Psi + \frac{X}{\sqrt{1-X^2}}\right) - Ln\mathcal{A}_\Psi = Ln\frac{\mathcal{A}_\Psi + \frac{X}{\sqrt{1-X^2}}}{\mathcal{A}_\Psi} = Ln\left(1 + \frac{X}{\mathcal{A}_\Psi \cdot \sqrt{1-X^2}}\right); \rightarrow$$

$$\boxed{\frac{M_0}{M} \approx 1 + \frac{X}{\mathcal{A}_\Psi \cdot \sqrt{1-X^2}}} \quad M = \frac{M_0}{1 + \frac{X}{\mathcal{A}_\Psi \cdot \sqrt{1-X^2}}}; \quad \Delta M = M_0 - M = M_0 \cdot \frac{X}{\mathcal{A}_\Psi \cdot \sqrt{1-X^2} + X};$$

$$X = \frac{1}{\sqrt{1 + \frac{1}{\mathcal{A}_\Psi^2 \cdot \left(\frac{M_0}{M} - 1\right)^2}}}; \text{since } X = \frac{V}{C_0}; \rightarrow \frac{V}{C_0} = \frac{1}{\sqrt{1 + \frac{1}{\mathcal{A}_\Psi^2 \cdot \left(\frac{M_0}{M} - 1\right)^2}}}; \quad M = \frac{M_0}{1 + \frac{\frac{V}{C_0}}{\mathcal{A}_\Psi \cdot \sqrt{1 - \frac{V^2}{C_0^2}}}};$$

$$\frac{V_{cmax}^2}{C_0^2} \sim 1 - 2 \cdot X^2 = \frac{1}{1 + \frac{1}{\mathcal{A}_\Psi^2 \cdot \left(\frac{M_0}{M} - 1\right)^2}}; \rightarrow \frac{M_0}{M} = 1 + \frac{\sqrt{1 - 2 \cdot X^2}}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X} \approx 1 + \frac{1}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X};$$

$$M = \frac{M_0}{1 + \frac{1}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X}}; \rightarrow \text{minimum importance of the value of the mass rest};$$

$$\Delta M = M_0 - M \sim M_0 - \frac{M_0}{1 + \frac{1}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X}} = \frac{M_0}{1 + \mathcal{A}_\Psi \cdot \sqrt{2} \cdot X}; \rightarrow \begin{bmatrix} \text{maximum change} \\ \text{the mass rest} \end{bmatrix}$$

If star-flight use energy of the elementary particles, for which:

$$\mathcal{A}_\Psi = \frac{1}{1 - \Delta\Psi_{кр}} > \frac{1}{X}, \text{that change the mass rest small.}$$

4. Composition and shall solve impulse differential equation of the motion without changeable mass rest, that is to say star-flight use energy of the cosmic rays within space-energy of the star $\left(r_{nop} = \frac{1}{\beta_\gamma \mathbb{N}_{op}}\right)$ for accelerate before quasilight speed $\rightarrow V_{cmax} \sim C_0 \cdot (1 - X^2)$

$$V \cdot dm + 2m \cdot dV = \frac{1}{C_0} \cdot \frac{d\beta_\Psi}{1 - \Delta\Psi_{кр}}; \quad m = \frac{M_0}{\sqrt{1 - \frac{V^2}{C_0^2}}}; \quad M_0 = const; \rightarrow$$

$$M_0 \cdot \frac{\frac{V^2}{C_0^2} \cdot dV}{\left(1 - \frac{V^2}{C_0^2}\right)^{3/2}} + \frac{2M_0 \cdot dV}{\sqrt{1 - \frac{V^2}{C_0^2}}} = \frac{1}{C_0} \cdot \frac{d\beta_\Psi}{1 - \Delta\Psi_{кр}}; \quad \rightarrow \quad \frac{\frac{V^2}{C_0^2} \cdot d\left(\frac{V}{C_0}\right)}{\left(1 - \frac{V^2}{C_0^2}\right)^{3/2}} + \frac{2 \cdot d\left(\frac{V}{C_0}\right)}{\sqrt{1 - \frac{V^2}{C_0^2}}} = \frac{1}{1 - \Delta\Psi_{кр}} \cdot \frac{d\beta_\Psi}{M_0 \cdot C_0^2};$$

we shall enter mark: $\frac{1}{1 - \Delta\Psi_{кр}} = \mathcal{A}_\Psi$; $\frac{V}{C_0} = X$; $\beta_\Psi \rightarrow$ [energy of the cosmic rays absorbed by star – flight from space – energy of the star]

$$\int_{I} \frac{X^2 \cdot dX}{(1-X^2)^{3/2}} + \int_{II} \frac{2 \cdot dX}{\sqrt{1-X^2}} = \int \mathcal{A}_\Psi \cdot \frac{d\beta_\Psi}{M_0 \cdot C_0^2} ; \rightarrow$$

$$I. \rightarrow \int b \cdot da = a \cdot b - \int a \cdot db ; \rightarrow \int X \cdot \frac{X \cdot dX}{(1-X^2)^{3/2}} = \frac{X}{\sqrt{1-X^2}} - \int \frac{dX}{\sqrt{1-X^2}} = \frac{X}{\sqrt{1-X^2}} - \arcsin X ;$$

$$II. \rightarrow \int \frac{2 \cdot dX}{\sqrt{1-X^2}} = 2 \cdot \arcsin X ;$$

$$\int I. + II. = \frac{X}{\sqrt{1-X^2}} + \arcsin X = \mathcal{A}_\Psi \cdot \frac{\beta_\Psi}{M_0 \cdot C_0^2} ; \rightarrow \boxed{\frac{\frac{V}{C_0}}{\sqrt{1-\frac{V^2}{C_0^2}}} + \arcsin\frac{V}{C_0} = \mathcal{A}_\Psi \cdot \frac{\beta_\Psi}{M_0 \cdot C_0^2}}$$

$$\frac{V_{cmax}}{C_0} \sim 1 - X^2 ; \rightarrow \frac{1}{\sqrt{2} \cdot X} + \frac{\pi}{2} \approx \mathcal{A}_\Psi \cdot \frac{\beta_\Psi}{M_0 \cdot C_0^2} ; \rightarrow \frac{1}{\sqrt{2} \cdot X} \approx \mathcal{A}_\Psi \cdot \frac{\beta_\Psi}{M_0 \cdot C_0^2} ;$$

$$\mathcal{A}_\Psi \cdot \beta_\Psi = \frac{\beta_\Psi}{1 - \Delta_{\Psi_{кр}}} \approx \frac{M_0 \cdot C_0^2}{\sqrt{2} \cdot X} ; \rightarrow \left[\begin{array}{c}\text{maximum amount of the energy of the elementary particles} \\ \text{by radiated engine of the star} - \text{flight}\end{array}\right]$$

$$\beta_{\Psi_o} = \frac{M_0 C_0^2}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X} ; \rightarrow \left[\begin{array}{c}\text{maximum amount of the energy of the cosmic rays by absorbed} \\ \text{engine of the star} - \text{flight}\end{array}\right]$$

5. $$\mathcal{A}_\Psi \cdot \beta_\Psi = \int \alpha_\Psi \cdot dT \text{ ; where: } \alpha_\Psi \rightarrow \left[\begin{array}{c}\text{current value of the speed of the radiation of the} \\ \text{energy of the elementary particles}\end{array}\right]$$

$$\alpha_{\Psi o} = \frac{\mathcal{A}_\Psi \cdot \beta_{\Psi_o}}{T_o} = \frac{M_0 C_0^2}{\sqrt{2} \cdot X \cdot T_0} \rightarrow \left[\begin{array}{c}\text{average value of the speed of the radiation of the energy of the} \\ \text{elementary particles for acceleration time of the star} - \text{flight} \\ \text{before quasilight speed}\end{array}\right]$$

Most comfortable for person is a motion with accelerate to equal accelerate of the free fall on surface of the earth:

$$\text{From theory of the planets we know, that: } g_3 = \frac{\mathbb{G} \cdot E_{p2}}{C_0^2 \cdot r_p^2} = 980.9881432 \ \frac{cm}{sec^2} ;$$

$$V = g_3 \cdot T ; \ V_{cmax} = C_0 \cdot (1 - X^2) \sim C_0 ; \ V_{cmax} \sim C_0 = g_3 \cdot T_o ; \ T_o \sim \frac{C_0}{g_3} = \left[\begin{array}{l}3.035791017 \cdot 10^7 s \\ 0.962643016 \text{ years}\end{array}\right]$$

$$R_o = \frac{g_3 \cdot T_0^2}{2} = \frac{C_0^2}{2 \cdot g_3} = 4.520406656 \cdot 10^{17} см ; \quad R_o < r_{nop} = \frac{1}{\beta_\gamma \mathbb{N}_{op}} = 1.047970045 \cdot 10^{18} cm ;$$

So, for achievement of the quasilight speed star-flight moving in space-energy of the star with accelerate g_3, spend time $T_o = 3.035791017 \cdot 10^7$ sec; about one year, herewith remaining within space-energy of the star.

$$\alpha_{\Psi o} = \frac{\mathcal{A}_\Psi \cdot \beta_{\Psi_o}}{T_o} = \frac{M_0 \cdot C_0^2}{\sqrt{2} \cdot X} \cdot \frac{g_3}{C_0} = \frac{M_0 \cdot C_0 g_3}{\sqrt{2} \cdot X} = \frac{M_0 \cdot Ç_0 \cdot g_3}{\sqrt{2}} \ \frac{эрг}{c} ; \ \frac{\alpha_{\Psi o}}{C_0^2} = \frac{M_0 g_3}{\sqrt{2} \cdot X \cdot C_0} \ \frac{гр}{c} \rightarrow$$

- average consumption of the fuel in unit of the time for time of the speedup of the star-flight - T_o;
For example we shall consider elementary particle e, energy which is a half of the value of the

classical charge of the electron: $\mathrm{e} = \left(\frac{x}{\alpha}\right)^{2/3} = 2.402077421 \cdot 10^{-10}\,\mathrm{erg}$. Such are an elementary particles in composition cosmic rays any starry system much.

$$\Delta E_{\mathrm{e}} \sim \frac{\left|\sqrt{\Psi_\lambda}\right|^2}{\sigma^8 \cdot \mathrm{e}^{5/2} \cdot \beta_\gamma^{4/5}} = 5.73437817 \cdot 10^{16}\,\mathrm{erg!} \quad \frac{\Delta E_{\mathrm{e}}}{\mathrm{e}} \sim \frac{1}{1 - \Delta\Psi_{\text{кр}}} = \mathcal{A}_\Psi = 2.387257846 \cdot 10^{26}!$$

We shall expect that mass rest of the star-flight: $M_0 = 10^9\,\text{гр} = 1000\ \mathrm{tn}$, then :

$$\beta_{\Psi_o} = \frac{M_0 C_0^2}{\mathcal{A}_\Psi \cdot \sqrt{2} \cdot X} = 2.424959216 \cdot 10^{17}\,\mathrm{erg}; \quad \frac{\beta_{\Psi_o}}{C_0^2} = 2.734218259 \cdot 10^{-4}\,\mathrm{gr}; \rightarrow \text{whole only!}$$

$$\frac{\beta_{\Psi_o}}{\mathrm{e}} = N = 1.009525836 \cdot 10^{27} \sim 10^{27}; \rightarrow \left[\begin{matrix}\text{whole it is necessary elementary particles that to} \\ \text{speedup star – flight before quasilight speed –} \\ \text{fantastic!}\end{matrix}\right]$$

$$\mathcal{A}_\Psi \beta_{\Psi_o} = 5.789002915 \cdot 10^{43}\,\mathrm{erg!} \rightarrow \left[\begin{matrix}\text{such amount of the energy it is necessary to} \\ \text{star – flight to reach quasilight speed –} \\ \text{what contrasting values}\end{matrix}\right]$$

$$\frac{\alpha_{\Psi o}}{C_0^2} = \frac{M_0 \cdot g_3}{\sqrt{2} \cdot X \cdot C_0} = \left[\begin{matrix} 2.150109792 \cdot 10^{15}\,\frac{\mathrm{gr}}{\mathrm{sec}} \\ 2.150109792 \cdot 10^{9}\,\frac{\mathrm{tn}}{\mathrm{sec}} \end{matrix}\right]!$$

Current consumption of the fuel by engine on elementary particles:

$$\frac{x^2 \cdot dx}{(1 - x^2)^{3/2}} + \frac{2 \cdot dx}{\sqrt{1 - x^2}} = \frac{\mathcal{A}_\Psi \cdot d\beta_\Psi}{M_0 C_0^2} = \frac{\frac{g^2 t^2}{C_0^2} \cdot \frac{g}{C_0} \cdot dt}{\left(1 - \frac{g^2}{C_0^2} \cdot t^2\right)^{3/2}} + \frac{2 \cdot \frac{g}{C_0} \cdot dt}{\sqrt{1 - \frac{g^2}{C_0^2} \cdot t^2}};$$

$$\alpha_\Psi = \frac{\mathcal{A}_\Psi \cdot d\beta_\Psi}{dt} = M_0 \cdot C_0^2 \cdot \left(\frac{\frac{g^3}{C_0^3} \cdot t^2}{\left(1 - \frac{g^2}{C_0^2} \cdot t^2\right)^{3/2}} + \frac{2 \cdot \frac{g}{C_0}}{\sqrt{1 - \frac{g^2 \cdot t^2}{C_0^2}}}\right); \rightarrow$$

$$\alpha_\Psi \approx M_0 \cdot C_0 \cdot g_3 \cdot \left(\frac{\frac{t^2}{T_o^2}}{\left(1 - \frac{1 - 2 \cdot X^2}{T_o^2} \cdot t^2\right)^{3/2}} + \frac{2}{\sqrt{1 - \frac{1 - 2 \cdot X^2}{T_o^2} \cdot t^2}}\right)$$