Gravitation and black holes

Antonio Saraiva

Correct apparent gravitational constant:

$$G = \left(\frac{q_e{}^3 c^2}{3h} \right)^{3/2} = 8.01849173 \times 10^{-11} m^{-3}$$

Correct gravitational constant:

$$G_0 = 4\pi.G = 1.0076334 \times 10^{-9} m^{-3}$$

Radius of the stellar black hole:

$$R = G_0{}^{-1/3} = 997.46841 m$$

Gravitational acceleration:

$$g = \frac{G_0 M}{4\pi.R^2}$$

Escape speed:

$$v^2 = \frac{G_0 M}{2\pi.R}$$

Orbital speed at the surface:

$$v_o{}^2 = \frac{G_0 M}{4\pi.R}$$

Correct mass of the sun:

$$G_W M_W = G_0 M_S .... \Leftrightarrow .... M_S = 1.3245 \times 10^{29} kg$$

Earth mass:

$$M_E = 3.97347 \times 10^{23} kg$$

To put the gravitation in the Lorentz equations we must substitute the relative speed (v) by the escape speed:

$$v = \sqrt{\frac{G_0 M}{2\pi.R}} ....and....... \begin{cases} x(x + vt) = x_0(x_0 - vt_0) \\ c^2 t_n{}^2 - x_n{}^2 = S \end{cases}$$

Force formula:

$$F = \frac{G_0 M.m}{4\pi.R^2}$$

Stellar black holes are quantized:

The escape speed is almost equal to light speed constant:

$$c^2 = \frac{G_0 M}{2\pi.G_0^{-1/3}} \ldots\ldots\Leftrightarrow\ldots\ldots M = 2\pi.c^2 G_0^{-4/3} = 5.6\times10^{29} kg$$

Temperature:

$$T = \frac{g}{2\pi} = \frac{c^2 G_0^{1/3}}{4\pi} = 7.17\times10^{12} S$$

$$k_B T = hf \ldots\ldots \Leftrightarrow \ldots\ldots f = 1.5\times10^{23} Hz$$

$$m = \frac{h^2}{k_B{}^2 T} = 3.22\times10^{-34} kg$$

$$m = \frac{h}{k_B f} = 3.22\times10^{-34} kg$$

???????? $$m = \frac{m_v}{\sqrt{1-v^2/c^2}} \ldots\ldots\Leftrightarrow\ldots\ldots v = c\sqrt{1-m_v{}^2/m^2} = c-\Delta v$$

$$\Leftrightarrow \ldots\ldots \Delta v = 7\times10^3 m/s = \frac{Sf^2}{2c} \ldots\ldots \Leftrightarrow \ldots\ldots f = 1.5\times10^{23} Hz$$

Why? This formula also exists???????

$$T = \frac{g}{2\pi} Q_e \ldots\ldots\Leftrightarrow\ldots\ldots Q_e = 1C$$ -- Electric charge

Voltage: $$T = \frac{V_E{}^2}{2} \ldots\ldots \Leftrightarrow \ldots\ldots V_E = 3.8\times10^6 Volt$$

$$Q_e = C_E V_E \ldots\ldots;\ldots\ldots C_E = \varepsilon.R = \varepsilon.G_0^{-1/3} = 2.6\times10^{-7} Farad$$

$$\varepsilon = 2.6\times10^{-10} m$$

$$\mu = \frac{1}{\varepsilon.c^2} = 4.3\times10^{-8} H/m$$

$$L = \mu.R = 4.3\times10^{-5}\,Henry$$

$$f = \frac{1}{2\pi\sqrt{LC_E}} = \frac{c}{2\pi.R} = 4.76\times10^{4}\,Hz$$

Electric field:

$$E = \frac{V_E}{4\pi.R} = \frac{Q_e}{4\pi.\varepsilon.R^2} = 306.0672V/m$$

Magnetic field:

$$B = \frac{E}{c} = 10^{-6}T = \frac{\mu.I_E}{2R} = \frac{\mu.Q_e f}{2G_0^{-1/3}}$$

$$V_E = Q_m f .... \Leftrightarrow .... Q_m = 79.832Weber$$

$$R_E = \frac{Q_m}{Q_e} = 79.832\,\Omega$$

$$v_e = c = V_E R_E$$

Polar acceleration of the jets:

$$g = \frac{dE}{dR} = \frac{G_0}{2\pi.\varepsilon} = 0.612ms^{-2}$$

$$v = gt = \sqrt{\frac{G_0 m}{2\pi.R}} \qquad \Leftrightarrow .... \begin{cases} x(x+gt^2) = x_0(x_0 - gtt_0) \\ c^2 t_n{}^2 - x_n{}^2 = S \end{cases}$$

$$v^2 = 2R.g$$

$$m = \frac{m_0}{\sqrt{1-v^2/c^2}} ....\Leftrightarrow ....E = \pm\sqrt{E_0{}^2 + p^2c^2}$$

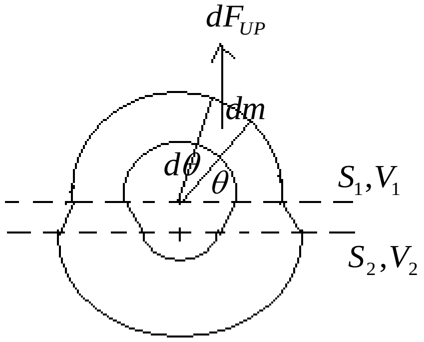
$$m = \frac{m_0}{(1-v^2/c^2)^{3/2}} .... \Leftrightarrow .... E = \pm\sqrt{E_0{}^2 + 3p^2c^2}$$

Autoreaction or bootstrap acceleration

The autoreaction is the generation of a reaction without an action (reactionless drive). It violates the linear momentum conservation principle but only locally. The principle is valid for all the universe because the universe reacts in the opposite direction. The center of mass of the universe stays at rest.

Why reactionless drives don't work:

A circular pipe forms a closed loop with two different sections and speeds:



$S_1, S_2 - \text{sec}tions..of..the..pipe;..V_1, V_2 - speeds..of..the..fluid.$

Outflow: $S_1V_1 = S_2V_2 ....and........ S_2 / S_1 = n$

Vertical centripetal force in the half pipe:

$$dF_{UP} = \frac{V_1^{\ 2}}{R}\sin\theta.dm.......and.......dm = \rho S_1 R d\theta$$

$$F_{UP} = \rho.V_1^{\ 2}S_1\int_0^{\pi}\sin\theta.d\theta.......\Leftrightarrow ....F_{UP} = 2\rho.S_1V_1^{\ 2}$$

The same for the down force:

$$F_{DOWN} = 2\rho.S_2V_2^{\ 2}$$

Force in the nozzle, linear acceleration:

$$F_{NZ} = \rho.S_1V_1^{\ 2}(1-1/n)$$

$$F = \rho.Sv^2 .... \Leftrightarrow .... E_Y = FR$$

$$E_Y = \rho.Sv^2 R.......and........\rho = \frac{m}{S2R}$$

$$E_Y = \frac{1}{2} mv^2$$