

Black hole quantum II

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See the Unified Absolute Relativity Theory at:

www.wbabin.net/saraiva/saraiva305.pdf
www.wbabin.net/saraiva/saraiva306.pdf
www.wbabin.net/saraiva/saraiva307.pdf
www.wbabin.net/saraiva/saraiva328.pdf
www.wbabin.net/stham/saraiva347.pdf
www.wbabin.net/stham/saraiva366.pdf
www.wbabin.net/stham/saraiva395.pdf
www.wbabin.net/stham/saraiva416.pdf

Mass:

$$M = \frac{c^2}{G^{4/3}} = 3.32 \times 10^{30} \text{ kg} ; \quad G = 6.673 \times 10^{-11} \text{ m}^{-3}$$

Radius:

$$R = \frac{1}{G^{1/3}} = 2.465 \times 10^3 \text{ m}$$

M – Mass; c – Light speed; R – Radius; G – Gravitational constant.

Frequency shift between a black hole and earth:

Earth gravitational potential:

$$v_T^2 = \frac{GM_T}{R_T} = 6.26 \times 10^7 \text{ m}^2 \text{ s}^{-2}$$

Frequency:

$$f = f_0 \sqrt{\frac{c-v}{c+v}}$$

$$\Delta f = -f_0 \sqrt{\frac{c}{8v_T}} = \frac{-f_0}{2\alpha} ; \quad \alpha \text{ -- Fine structure constant.}$$

Number of free particles, in vacuum, at earth surface:

Gravitons:

$$n_G = 6.673 \times 10^{-11} m^{-3}$$

Neutrinos:

$$n_\nu = 1.7 \times 10^6 m^{-3}$$

Electrons:

$$n_e = 5.8 \times 10^7 m^{-3}$$

Life time of a star:

$$t = \frac{1}{100} \sqrt{\frac{GR^9}{M}}$$

Sun: $M = 2 \times 10^{30} kg ; \quad R = 7 \times 10^8 m$

$$t = 3.7 \times 10^{17} s$$

The macroscopic matter can travel faster than light speed.

Quasi periodic oscillation of black holes:

Frequency:

$$f = \frac{c^3}{2\pi GM}$$

For the black hole quantum: $f = 19.353 kHz$

For $M = 2 \times 10^{34} kg$: $f = 3.2 Hz$