On the Black Holes

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In this note, it is showed that a black hole can be formed, but also to come undone.

Key words: black hole, Fatio-Le Sage idea, cosmic microwave background radiation.

The gravity attraction force does not exist. The bodies are pushed by the cosmic microwave background radiation (CMBR), following the Fatio-Le Sage idea [1]. From which, it is obtained the Newton's formula [1]:

$$F = G\frac{m_1 m_2}{r^2} \quad (1)$$

where now F is the pushing force, m_1 and m_2 the masses, r the distance between them and G the Newton's gravitational constant.

Therefore, we may apply the Newton's mechanics. From which, we have that for a body of mass M, composed of N particles of mass m ($M = N m$) and speed v, it would be:

$$E = K.E. + P.E. = \frac{1}{2}mv^2 - G\frac{Mm}{R} \quad (2)$$

E, $K.E.$ and $P.E.$ being the total, kinetic and potential energies of one particle, respectively, and R the radius of the body. And where $P.E. = -GMm/R$ is obtained from $F = -dP.E./dt = GMm/R^2$, which is (1) with $m_1 = M$, $m_2 = m$ and $r = R$.

From (2), we obtain the so-called escape velocity:

$$E = K.E. + P.E. = \frac{1}{2}mv_e^2 - G\frac{Mm}{R} = 0$$

$$v_e = \sqrt{\frac{2GM}{R}} \quad (3)$$

When $v_e = c$, where c is the speed of the light in the vacuum, the body is in the limit of being converted in a so-called black hole (BH):

$$\frac{M}{R} = \frac{c^2}{2G} \quad (4)$$

But also, we have to take into account the temperature T of the body. If $T > 2.7\ K$, which is the temperature of the CMBR, then the body emits more thermal radiation than it absorbs (T decreases), the CMBR flux onto the body decreases, the pushing force $F = GMm/R^2$ decreases, v_e decreases, the particles with $v \geq v_e$ escape from the body, N decreases, and M decreases.

If this happens when the body is in the limit of a BH, $v_e = c$, then the BH will not form. Hence, only the bodies with $M/R = c^2/2G$ and temperatures $T \leq 2.7\ K$ can form a BH, which has a relation $M/R \geq c^2/2G$.

Finally, a BH with $T \leq 2.7\ K$ increases its mass, but also increases its temperature. A BH with $T > 2.7\ K$ decreases its mass and its temperature. And a BH ceases to be it when $M/R < c^2/2G$.

[1] José Francisco García Juliá, Another Explanation of the Gravity, viXra: 1311.0093 [Classical Physics].
http://vixra.org/abs/1311.0093