About black holes

Abstract

This article refers to and is at the same time a supplement to the work *The Cold Big Bang Model* , hereafter called MBBR or the basic work, which was printed by the Tribuna Economică publishing house, in the year 2021, with ISBN 987-973-688-429 -0; work is also listed at: https://bigbangdigitalmodel.com/en/

We propose to calculate the flow of dark matter - *energy-mass* - transported on the energy highways (see MBBR §Energy highways) that cross the event horizon of a black hole.

1. INTRODUCTION

MBBR enriches the concepts of the physical space in which we live with some remarkable assumptions, these are the *Axioms 7* and *8* of the basic paper. The last axiom states, in short, that space is never empty. This idea has important and unexpected consequences, likely to change some of our concepts of physics. For example, a black hole will endlessly absorb the matter around it becoming more and more massive without ever once vaporizing due to Hawking radiation. It is not only baryonic matter but, in particular, the dark matter that space, as defined in MBBR, can continuously manufacture it. Furthermore, if traditional cosmology marvels at the fact that supermassive black holes exist, although since the Big Bang, it seems that too little time has passed for these monsters of tens of billions of solar masses to form, we can now we propose to cosmology the hypothesis *of the missing process* by which supermassive black holes can form in the centers of galaxies.

To perform the calculations, I will use the following elements as they were defined in the CBBM: click here to see them.

2. CONTENTS

We do the absorption calculations for a surface 1 m long and 1 Psu wide, in the plane of the accretion disk. We assume that n Peu are transferred from each cell of quantum space within 1 Psu in the absorption slit on the event horizon at the rate of 1/p of the speed of light, i.e. 1 Psu in p Ptu. According to the formula (x-3) it follows:

$$\text{Ꝑ}_{SI} = \frac{1{,}616229^{-1} \cdot 10^{35} \cdot n \cdot 6{,}525 \cdot 10^{-34}\ \mathrm{J}}{p \cdot 5{,}391 \cdot 10^{-44}\ s \cdot 1{,}616229^{-1} \cdot 10^{35}\ Psu^2}$$

In the numerator we have the number of cells of 1 Psu in one meter multiplied by the energy that crosses a cell and in the denominator is the time in which the transfer takes place multiplied by the irradiated surface.

According to the transformation formulas from the Planck system to SI, it follows:

$$P_{SI} = \frac{n \cdot 6{,}525 \cdot 10^{-34}\ \mathrm{J}}{p \cdot 5{,}391 \cdot 10^{-44} s \cdot 1{,}616229^2 \cdot 10^{-70}\ m^2} = \frac{n}{p} \cdot 4.63346 \cdot 10^{79}\ \frac{W}{m^2}$$

Taking the Schwarzschild radius into account, the circumference in the plane of the accretion disk is:

(x) $$L_c = 2 \cdot \pi \cdot RS = 4 \cdot \pi \cdot \frac{G \cdot M_0}{c^2} = 4 \cdot \pi \cdot \frac{6{,}67408 \cdot 10^{-11}\ [m^3 \cdot kg^{-1} \cdot s^{-2}] \cdot 1{,}989 \cdot 10^{30}\ kg}{299787989{,}40^2\ m^2 \cdot s^{-2}} = 1{,}8561 \cdot 10^4\ \mathrm{m}$$

The mass-energy absorbed over the entire surface of the 1 Psu wide equatorial circumference of the black hole is:

$$PG_{SI} = P_{SI} \cdot L_c \cdot 1\ \mathrm{Psu} = \frac{n}{p} \cdot 4.63346 \cdot 10^{79}\ \frac{W}{m^2} \cdot 1{,}8561 \cdot 10^4\ \mathrm{m} \cdot 1{,}616229 \cdot 10^{-35}\ \mathrm{m} =$$

$$= \frac{n}{p} \cdot 13{,}898 \cdot 10^{48}\ \mathrm{W}$$

In one year, it results:

$$PG_{SI} \cdot SC_a = 13{,}898 \cdot 10^{48}\ \mathrm{W} \cdot 31.556.952\ \mathrm{s/an} = \frac{n}{p} \cdot 4{,}3857 \cdot 10^{56}\ \mathrm{J/an}$$

so, just by gravitational absorption of 1 Peu/Psu dark matter in the vicinity of a 1 solar mass black hole, its *energy-mass* increases per year by the above value. Or, in solar *energy-mass* the increase is:

(x+1) $$\frac{SC_a}{c^2} \cdot \frac{PG_{SI}}{M_s} = \frac{n}{p} \cdot \frac{4{,}3857 \cdot 10^{56} \frac{J}{an}}{(299.787.989{,}40 \frac{m}{s})^2 \cdot 1{,}989^{\ 30}\ kg} = \frac{n}{p} \cdot 2.453\ \text{solar} \cdot 10^9\ \textit{energy-mass}\ /\text{year}$$

These results are valid in the conditions of the present universe for a relatively short period of time, because the results depend on the value of the gravitational constant which in the MBBR is variable, more precisely decreasing.

To draw a conclusion on this quantity we need to have an idea of the values of n and p.

For example, let's choose n = 1 and p = 10^{10}Ptu, i.e. let the fall speed be $\frac{1\ Psu}{10^{10}\ Ptu}$ which in SI means

$$\frac{1{,}616229 \cdot 10^{-35}\ m}{10^{10} \cdot 5{,}391 \cdot 10^{-44}\ s} = 0.02998\ \frac{m}{s}$$

The matter in the accretion disk is expected to rotate at a very high speed, thus the collapse speed we suspect is low, we believe that a speed of 30 cm/s, as in the example above, could be real. So, with the above values, in a million years, the black hole would absorb the amount of 245000 solar *mass* energy. Of course, this growth rate cannot apply to any celestial body because only black holes hold captive all the absorbed matter. Due to the gravitational action, massive clusters of celestial bodies should gather around them a lot of dark matter, which is practically observed in the form of gravitational lenses that surround galaxies.