

Black Holes

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Abstract— The Black holes were interpreted as having intense Gravitational field where even light cannot escape. Since Gravity was explained as due to the motion of the Planets and not due to the attractive forces of masses in the article “Acceleration due to the motion of the Planets inferred as Gravity”. We need different explanation for Black hole. Hence, here it tries to say that Black holes are only an empty space or void. It says that during Galaxy formation, huge ball of molten sphere rotates at high angular velocities which give rise to arms of galaxies following the path of spiral curve from its separation at the equatorial regions gradually ending up with all the masses of sphere empty by ejecting from its central core. For our practical considerations we can neglect vertical components, if any and consider only the equatorial rotational velocities, which give rise to the arms of spiral galaxies. As the masses of the volume of sphere due to its high rotational velocity gets converted or distributed as the masses of arms of galaxies which in turn becomes stars and planets leaving empty space at the centre, which we call as Black hole. From mathematical deduction we can establish approximate relationship between rotational velocities and the diameter of Black hole.

Index Terms— Black hole, angular velocities, volume of sphere

I. INTRODUCTION

The black holes are studied in detail in order to understand the formation of Universe. The knowledge of its study gives us the clue how universe and Galaxies formed. Usually it is found in the centre of the Galaxies. Many scientists believe it has immense Gravity which may not be true. It is only the empty space which was left over after central mass of Galaxies spread over as arms of galaxies.

II. HISTORY

The study of Black holes started few centuries back and it lead to many theories. The idea of even light cannot escape from the black hole because of its heavy mass and terms like event horizon was also put forward by some scientist. Till now there is no established truth about Black holes keeping many options open for other possibilities. One of those given below

III. PROPOSED EXPLANATIONS FOR BLACK HOLE

Black hole is usually observed in the centre of Galaxies which itself evident that it forms along with the formation of Galaxies. Let us assume the Galaxies are formed from huge

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rotating molten sphere of volume $\frac{4}{3}\pi r^3$ where r is the radius of molten sphere. Since it rotates at high angular velocities, the masses gets separated at regular intervals from the sphere, which form the arms of galaxy along the periphery of sphere just like a point unwinds itself from the circle forming a spiral curve as we witness in spiral Galaxies. It continues as long as all the masses in the central sphere gets ejected and distributed along the arms of galaxy to form stars and planets leaving the centre of sphere empty which eventually becomes, appears or called as Black holes. Let us form the approximate relationship between the diameter of Black holes and its angular velocities.

We know that

$$\text{Volume of sphere} = \frac{4}{3}\pi r_1^3,$$

r_1 = radius of molten central sphere

We also know that discharge $Q = AV$

Where A = cross sectional area and V = velocity

Since all the masses in the volume of sphere gets distributed in the arms of galaxy whose cross section area $A = \pi d_2^2/4$ and d_2 is the cross sectional diameter of the arms of the galaxies

Velocity is given by $V = r_1\omega$ where r_1 = radius of molten central sphere and ω = angular velocity of sphere

Since the masses in the volume of sphere get distributed in the arms of Galaxies we equate the decreasing mass in the volume of sphere to the discharge going out from the sphere.

So, we get

$$\frac{4}{3}\pi r_1^3/t = \pi d_2^2/4 * r_1\omega * n$$

Where n = number of arms of galaxy

Simplifying the above equation we get

$$\text{Diameter of Black hole } d_1 = 0.866 d_2 \sqrt{n\omega t} \dots (1)$$

Suppose if the arms of galaxy are not having uniform cross sections then we have to take individual cross sections and add as shown below

$$d_1 = 0.866 d_2 \sqrt{\omega t} + 0.866 d_3 \sqrt{\omega t} + 0.866 d_4 \sqrt{\omega t} \dots \text{so on}$$

Where d_3, d_4 are the cross sectional diameters of arms of Galaxy

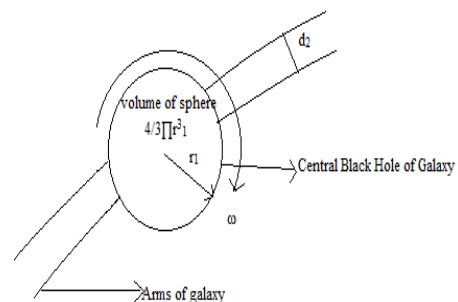


Figure 1

So from the above equation 1 we can say that the Diameter of Black hole depends on the cross sectional diameter of arms of Galaxy, square root of product of the number of the arms of Galaxy, the angular velocities and the time. Black hole size may or may not be constant as it depends on the angular

velocity and the time. But it can appear to move when it's surrounding arms moves together.

IV. EXPLAINING THE ATTRIBUTES OF BLACK HOLE

The above arguments say that Black hole is only an empty space or void, remnants or mark left over at the centre of the Galaxy from its formation. It may not have any intense gravitational field or any other properties as we all thinking. It appears to move does not mean it moves, actually it is the surrounding arms of galaxy with various common velocity components among themselves simultaneously moves together. Since all of them separated from the common central sphere whose movement appears for us that the black hole is moving and engulfing nearby masses. It is just an empty space; we cannot find or detect anything from it. Even the idea of finding its presence by observing the disturbances in the neighbouring celestial bodies are doubtful. It is believed that the Black holes grow by absorbing nearby objects. But, actually the angular velocities of the surrounding arms of the Galaxy increases which in turn increases the central empty or void space proportionately leading to false interpretation that Black holes grew by absorbing masses and it is also called as accretion. It is also believed that black hole observed not only in the centre of Galaxy but also in the middle of Galaxy. if it so, which can also explained with the same reason that high rotational velocities of stars or planets makes its centre empty by ejecting masses of its own and becomes Black hole.

V. CONCLUSION

Hence from the above discussion we can say that black hole may not be having any properties such as high masses density, event horizon and so on, which gives rise to the idea of huge Gravity, light cannot escape. Instead it is just an empty space or void. Nothing can be measured except its angular velocity and size of the black hole. If any radiations emanating from it could be possibly the radiations of the thermal photons ejected during the Galaxy formation.

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