Research Guru
Online Journal of Multidisciplinary Subjects (ISSN : 2349-266X)
Impact Factor:4.081
Volume-13, Issue-2, September-2019
www.researchguru.net

Sun in ancient literature and Powerful heat Emission by Black Hole

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Abstract: Process of fission and fusion is the continuous process inside the Stars. Atoms of Hydrogen is converted into Helium and vice –versa. Under thermonuclear reaction inside the atom may contraction continuing without end beyond the event horizon and interestingly left is nothing but a generation of gravitational field so intense that no matter or signals of any kind may be allowed to escape to infinity and bring information about the fate of the collapsing matter. Body fallen deep inside the event horizon evolves energy magnitude . Different layers on the surface as Event horizon is one way membrane in an undefined shape. Fuel burn inside it further gravitational field becomes too powerful that nothing can escape outside from there. Explicitly light emitted at any point inside the event horizon is dragged inward irrespective of the direction of emission. Fusion process may leads to light, emitted at any point outside the event horizon can escape to infinity effects heat

Keywords: Black hole, Energy, Pulsar, Gravitation, Emission

INTRODUCTION: HEAT LAYER IN A STAR

For Collapsed objects like white dwarf and neutron stars. There had been credible evidences for the existence in some of the cases direct observation had been witnessed of a large number of collapsed objects like neutron stars or black holes inside our own galaxy. Their number is most likely larger than ten to the power eight .According a study , the collapsing core has a mass greater than 3 MΘ to begin with its collapses cannot be halted to settle down to a neutron star equilibrium configuration they can. Here the contraction would continue without end beyond the event horizon and ultimately what is left is nothing but a gravitational field so intense that no matter or signals of any kind are allowed to escape to infinity and bring information about the fate of the collapsing matter present in our galaxy .

Moreover, there had been an established fact that powerful radiation emission can take place after swallowing of mater by a black hole till the end of their complete collapse. Not only in India, Astrophysicists are convinced that X-rays comprise the most significant observable emission from the velocity of a black hole. Contrast to the prevailing facts that one of the few ways in which X-rays can be produced is by mass accretion onto collapsed orbits specially black holes. A mass accretion can take place in various ways leads energy. Gravitational collapsing and accreting mass may be falling radically or spiraling down on isolated black hole system. No need to say so far as the observational aspect is concerned, the good way to infer about the existence of black hole is to capitalize on a double-star system on accreting pattern and the missing companion is suspected to be a Black hole and is so near to a normal star that it draws in matter from its companion. Flow from one star to another is well known in close binary system and a strong emission in the X-rays region is expected if one of the components is a neutron star or a black hole. For such a binary system, material flowing from one star would have too much angular momentum to be able to fall directly on to a compact companion. It would instead from a spinning disc, in which the matter spirals inward. The energy liberated by the disc could again emerge as X-rays.

OBSERVATION AND CALCULATION :

Without any loss of generality , let us see the accretion of mass of an isolated black hole. It has been a clear fact that in the cases of Kerr black hole, there exists just outside the ergo sphere a circular orbit r=(3+)m/2 where $r=r_{ms}$, $r=r_{mb}$ and $r=r_{ph}$ coincide. Means, it is recognized that at this distance, the infilling gas due to dragging of inertial frames will be swung into orbital rotation about the hole. Its angular velocity, then, can be obtained (with negative sign). This is given for maximally rotating holes,

$$\Omega = \frac{m + \sqrt{mr}}{(r + m)\sqrt{mr} + r^2 \; m^2}$$

and

$$\Omega]_r = \frac{3+\sqrt{5}}{2} + m\,\underline{\Omega}\;\frac{1}{5m}$$

The binding energy in the orbit is given by,

$$^{E}\text{bind} = 1 - E/\mu\,\underline{\Omega}\;0.14$$

Heat evopartion and continuous radition further puts forwards to radiation, the particle may lose its energy and then it would gradually spiral inward through the ergo sphere to settle down to the last circular orbit near the horizon. Momentum may not be halted , the gas approaches the horizon, its angular velocity as seen from infinity must approach the angular velocity of the horizon for (a = m).

$$\Omega = \Omega \text{ horizon } 1/(2m).$$

Some facts may be understand from the following Table :

Table

ρ = 1.5, -5.91m < λ < 4.91m

λ	-5.9m	-3.9m	-1.9m	.1m	2.1m	2.8m	3m	4.1m
+Z	3.77	3.15	2.52	1.9	1.28	1.06	.99	0.65

Sprillalying the conclusion, as the particle spiral down from r=(3+√5)m/2 to the last circular orbit r = m, there are marked and abrupt changes in the frequency shift of omission. Thus, the particle falls from the orbit r= (3+√5)m/2, there is slight decrease in the value of the frequency shift but it abruptly increases as r = 2m. It is concluded that the region near r =(3+√5)m/2, is a region of increased activity where there is supposed to be probability of maximum heat radiation. Recognized as increase is more of abrupt for values of r less than 2m. There is fantastically high spread in (1+Z) among the photons emitted at small value of r near r = m. Thus the consistent with the strong gravitational field in that region. At values of r greater than (3+√5)m/2, the frequency shift decreases slowly. If we examine, it becomes clear that frequency shift of emitted radiation is greater than 1 for values of impact parameters in the range of -7m < λ < 2m.

Now, we come to the case of slowly rotating isolated black hole. Accretion of a photon or a particle to a black hole may occur broadly in two ways. A particle falling into the black hole or it may occur broadly in two ways. A particle falling into the black hole or it may be that on approaching the hole, it gets deflected. The particle that goes in and gets caught gives energy and angular momentum to the black hole. If the particle going in and gets deflected by the hole, it picks up energy and angular momentum from the whole. A particle entering the ergo sphere, if it is properly powered, can escape to infinity. A real particle in the ergo sphere must always change its position regardless of whether it eventually escapes to infinity or enters the event horizon to collapse. From the ergo sphere a particle can always send a signal out to infinity. The dynamics of the geometry of the ergo sphere can be probed in the case of Kerr metric. Penrose have shown that it is possible to extract energy out of the zone. For this purpose, he has suggested the following steps :

(a) A small object with rest plus kinetic energy E1 is shot into this region.

(b) It is allowed to explode (or turn) on its rocket engine) in such a way that that the disintegration product (or, equivalently, the rocket ejects) crosses the event horizon and gets accreted to the hole.

(c) The residual mass is allowed to re-emerge from the surface of infinite red shift with total energy E2.

(c) The process is so arrange that E2 exceeds E1.

Here, the energy E2-E1 can be said to have been extracted from the rotational energy of the black hole in the sense that angular momentum of the black hole always decreases in such a process. If the "energy gain process" is repeated again and again, the black hole will be losing its angular momentum. The rotation of the black hole will be slower and slower and $(a/m) \rightarrow 0$. In the equatorial plane, the one way membrane (event horizon) expands and coalesces with the infinite red shift surface, wiping out the ergo sphere. The Kerr metric in the limit reduces to the perturbed Schwarzschild metric. It appears from the orbits just outside the ergo sphere in the limit settles down to orbits given by respectively outside the event horizon of the perturbed. There is also another way of obtaining this perturbed metric. For the orbits given by the angular velocity of orbital rotation and the binding energy are:

$$\Omega \quad a/5.72m,$$

$$^{E}\mathrm{bind} \quad \rightarrow 0.18$$

Thus, a particle spiraling in from $r = \infty$ towards a black at the last circular orbit at $r = 2m(1+a)$ radiates a fraction $1 - \sqrt{2/3}$ or 18 percent of the rest mass. In the case of particle spiraling in a maximally rotating Kerr black hole radiates 42 percent of the rest mass before arriving at the last circular orbit.

Now we proceed to investigation the frequency shift of radiation emitted near the orbit. We get from

$$2mr(L-aE)^2 = K^2E^2r^2\,(r^2 + a^2),$$

and $$(k^2 + 1)E^2(r^2 + a^2) = L^2 + \Delta\mu^2,$$

Equation is so transformed as

$$(\sqrt{2m})\,(L/E) = \sqrt{2}ma + K\ \sqrt{r}(r2 + a2)$$

Substituting for k, we get

$$\lambda = a + \frac{{}^{r}\sqrt{r}}{\sqrt{3}r - \cancel{2m}}$$

Substituting $a = m\alpha$ and $r = 2m\,(1+\alpha)$ and neglecting terms containing $\alpha 2$ and higher power of α, we get λ $\lambda = m\ [\sqrt{\ }2+\{(3/\sqrt[2]{2})+1\}\alpha]$

Again, making the substitution $a = m$ and $r = 2m(1+\alpha)$ and approximating by neglecting $\alpha 2$ and higher powers of α, we get -

$\lambda_1 = -m[4 + 3\alpha]$ and $\lambda_2 = m[4 + \alpha]$

Then for outgoing photons emitted near $r=2m(1+\alpha)$ to escape, λ must satisfy the condition -

$$\lambda_1 < \lambda < \lambda_2$$

We can say that for the outgoing photons to escape, λ can have the following values,

$\lambda = -m(4 + k\alpha)$, where $k<3$,

or, $\lambda = m(4 + k_1\alpha)$, where $k_1<1$, For the frequency shift for the first set of values, we get from by making approximation as in the following expression:

$$1+Z = \frac{0.18(4 + 20\alpha + 3\sqrt{2}\alpha)}{4\alpha}$$

For the values of $\bar{\lambda}$ given above

$$1+Z = \frac{0.18(4 + 20\alpha + 5\sqrt{2}\alpha}{4\alpha}$$

For the desired value

It can be easily be verified that for a frequency shift greater than 1, $\alpha<0.23$. As a becomes smaller and smaller, it can be easily verified becomes higher and higher. For the ingoing photons the emitted radiation will escape if $\lambda > m(4+a)$ or $\lambda = m(4+k_2\alpha)$ where $k_2>1$. We get for frequency shift an expression which is same.

Hence, we conclude that in the black hole represented by the perturbed metric, it is possible for the particle in the last circular stable orbit $r=2m(1+\alpha)$ to emit radiation which can escape to infinity. The binary system, gas can flow from the atmosphere of the ordinary star into its companion hole. Also a super massive hole ($10^7 M\Theta \lessapprox M \lessapprox 10^{11} M\Theta$) at the centre of a galaxy, due to its high mass and the large gas density accretes much more than a hole of ordinary mass in a normal interstellar region. The accreting gas in a binary system and in the center of a galaxy has very high specific angular momentum. Hence, the accretion is far from spherical. Instead of falling inward radically or roughly radically, the gas elements go into Keplerian orbits around the hole, forming gas disc analogous to Saturn's rings. However, the density in accreting disc is far greater than the density in Saurian ring. The presence of viscosity in accreting disc removes the angular momentum permitting the gas to spiral gradually into the hole. Viscosity also heats the gas which causes it to radiate and this radiation is largely the X-rays in binary system and ultraviolet and blue light in super massive holes. The angular momentum removed by the viscosity is transported by viscous stresses from the inner part of the disc to the outer part and then carried away by passing gas. The total energy radiated by a unit mass of gas during its passage inward through the disc is approximately equal to the gravitational binding energy of the unit mass when it reaches the inner edge of the disc. For a black hole, the inner edge of the accreting disc is at the last stable circular orbit. We have seen that in the case of maximally rotating Kerr black hole, there exists a stable circular orbit $r_{ms} = (3 + \sqrt{5})m/2$, just outside the ergo sphere. Hence, it is just possible that the accreting gas first forms a disc with its inner edge at the circular orbit $r = (3 + \sqrt{5})m/2$, where its binding energy is given by,

$$E_{bind} \simeq 0.14$$

Here the presence of viscosity in accreting disc will remove a part of the angular momentum permitting the gas to spiral through the ergo sphere, the angular momentum of the gas spiraling through the ergo sphere is still high enough. Hence, the gas elements go into Keplerian orbit to form a disc with its inner edge at the last circular orbit. The binding energy there is given by,

$$E_{bind} \simeq 0.42$$

Here also the presence of viscosity will remove the remaining angular momentum and the gas finally falls in the hole.

Now we consider the black hole represented by the perturbed metric. In this case also the accreting disc will be formed with inner edge at the last circular orbit $r_{ms} = 2m(1+X)$. The binding energy is given by:

$$E_{bind} \simeq [\sqrt{2}/3][1 + (\alpha/8\sqrt{2}].$$

Here, X is a variable would be denoting different real values as the configuration of different energy level and layer of heat. The orbital period in this case is greater than the period in case of maximally rotating Kerr hole and also in the case of non-rotating hole. P_{min} in these cases are given as follows:

$$P_{min} = 12\pi\sqrt{6}m, \quad \text{for non-rotating hole.}$$

$$P_{min} = 4\pi m, \quad \text{for maximally-rotating hole.}$$

Renowned scientist ,Swanyaev has given a test for rotation of the black hole as follows:

"A black hole is non-rotating if $P_{min} = 12\pi\sqrt{6}m$ or rotating if $4\pi m \lesssim P_{min} \lesssim 12\pi\sqrt{6}m$. It appears that test particle falls in case of slowly rotating black hole represented by the perturbed metric represented.

Lastly, it appears that the circular orbits near the event horizon of the perturbed metric can explain the formation and nature of rings round the Saturn And other planets in our galaxy.

Facts from Ancient Indian Literature: Identification Principle of God and the BRAHMA of the Hindus, and MITHRAS of the Persians, and ATHOM, AMUN, PHTHA, and OSIRIS, of the Egyptians, the BEL of the Chaldeans, the ADONAI of the Phœnicians, the ADONIS and APOLLO of the Greeks this quite becomes a spiritual fact but personifications of the Sun, the regenerating Principle, image of that fecundity which perpetuates and rejuvenates the world's existence that is supposed as the huge source of Energy as a star in our Glaxy One of the Stars as sun is very important in the Vedas Ancient Iranian literature. This star is known by the Vedic hymns namely Sūrya and Savitr. Here beginning first name occurs exclusively, sometimes they are used interchangeably and sometimes they are used as though they represent quite distinct celestial object. Here customary supposition had been that Savitr is referred to the Sun when it is invisible; while Sūrya refers to it when this is visible to the millions of worshippers. According to a published paper the s un is the name of an ancient Iranian god and it is the name of a "Yazata" in the Avesta book. The Avestan form of this word is "Hvarexšaeta" (Hvarekhshaeta) and it is said "Xvaršēt" in the Pahlavi texts, and "Xoršid" (Khoshid) in the Persian. The Sun from a long time ago was praised by Aryan people and ancient Iranian even before Zoroaster. Moreover Greek Historians have written something about Iranian who respected the Sun and Sun shine. Like is the contraction process of a star as white dwarf, red giant, neutron star for the same division of a star.

त्रियोजनसहस्रं तु अध्वानमवतीर्य हि ।
आदित्यमाहरिष्यामि न मे क्षुत्प्रतियास्यति ॥ १४ ॥
इति सञ्चिन्त्य मनसा पुरैष वलदर्पितः ।
अनाधृष्यतमं देवमपि देवर्षिदानवैः ॥ १५ ॥

उस समय इसने यह सेाचा कि, जब तक मैं सूर्य को न खाऊँगा तब तक मेरी भूख न मिटेगी—सेा यह विचार कर, यह बल से दर्पित सूर्य को पकड़ने के लिये तीन हज़ार योजन ऊपर उछल गया। किन्तु सूर्यदेव तेा देवर्षियों और राक्षसेां द्वारा तिरस्कार करने योग्य नहीं हैं ॥ १४ ॥ १५ ॥

Courtesy: Valmiki Ramayan ,yudh kand(28|14-16

ACKNOWLEGMENT: Author is indebted to Sir Dr.Panckaj Garg, visionary Founder and Advisor of Jayoti Vidyapeeth Women's University,Jaipur, youngest founder of a University in India declared by India Book of Records for his mentorship to attribute the richest Indian Ancient Literature highlighting Indian past glory in every Research under the Esteemed University.

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