The electrodynamic algorithm of core of stars and black holes

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Abstract

The prediction of magnetic field of Sgr A* by algorithm of star's core rotation is presented to my book "Modified Hawking field" 2010 .In the present article we can see the way .We can calculate the electrodynamic parameters of nucleus of stars and black holes like Sgr A*

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Introduction

The following article is based to an idea of Alvfen Carlqvist that we can predict the parameters of super massive stars and black holes by electrodynamic parameters .Gravity energy is equalised with electrodynamic energy and the magnetic field is produced by an L C circuit .Basic hypothesis of my book is that electric charge is equal with mass by a coefficient($\mathbf{k}_{5.1a}$) , different of Stoney's coefficient as well as Hawking's coefficient but is an agreement with Hawking theory .In my mathematical method I introduce two mathematical parameters β and t_c . These parameters are necessary to extract a coefficient which is related with the 2.73 K of cosmic background radiation [9]

Article

The prediction of magnetic field of Sgr A* by algorithm of star's core rotation is presented to my book[1,9] .We can input to algorithm the mass of star **m** and the radius **R**= l_c , l_c = length of Coulomb law

$$\rho_m=\frac{m}{V},\rho_c=k\,\rho_m,(1)$$

ρ_m :density of mater , m: mass , V: volume = $(4/3)\pi\, l_c^3$,
ρ_c :density of electric charge
k = k $_{5.1a}$=$(G/2\pi K_e)^{1/2}$ = 3.43745×10^{-11} C/Kg , $k_{51a}=\sqrt{2G\varepsilon_0}$

$$t_c=K_e\,m\,\theta_v\,\rho_c,(2)$$

Finally the t_c parameter is independent of density of matter and it is depended of the radius of the star
K_e: Coulomb constant , θ_V =(4/3)π , t_c : mathematical parameter

$$\tau=k\,t_c,(3)$$

τ: elastic coefficient of Hook law ,

$$k=\beta\,t_c,\beta=\frac{k}{t_c},(4)$$

We can find β mathematical parameter

$$\beta=\frac{k^2}{4\pi F}l_c,F=\frac{k^2}{4\pi\beta}l_c,(5)$$

l_c is the radius(R) of the body , we find F force of oscilation[9]

$$g=\frac{F}{m},(6)\quad \textit{, Newton law}$$

$$\tau=C\frac{g_x^2}{k^2},C=\tau\frac{k^2}{g_x^2},(7)$$

we can find C capacity

$$C=k\frac{Q}{2g\lambda},\lambda=2\pi l_c,Q=2g\lambda\frac{C}{k},(8)$$

we can find **Q** , the electric charge
The period of rotation is :

$$T=2\pi\sqrt{\frac{\lambda}{g}},(9)$$

$$T=2\pi\sqrt{LC},L=\frac{T^2}{4\pi^2C},(10)$$

L: self-induction coefficient
So we can find the physics parameters of the star or black hole
g : acceleration , C : electric capacity , Q :electric charge , T : period of rotation and L : self-induction coefficient
From that values we can calculate the electromagnetic field of the core of star or black hole
energy of electric currents :

$$E=U\,Q=k\,U_m\,Q=Q\frac{G\,m\,k}{R},(11)$$

U : electric potential , Um : gravitation potential , G : gravitation constant , m: mass of star , k=k $_{5.1a}$

and $$I=\sqrt{\frac{2E}{L}},(12)$$

I: intensity of current , L : self-induction coefficient

so $$B=\frac{E}{I\,2\pi R^2/n},(13)$$

Transformation of Lorenz-Laplace force F = B I 2πR/n , E = F R
m: mass of star or black hole , I : intensity of current , R = radius of star
n=R/Rcore , Rcore : radius of core of star ,
for black holes n=1 , for Sun n=5 and for Earth n=2
The results are very good for Earth-nucleus , Sun and Sgr A*.Also we can write the function of magnetic field as following:

$$B=\frac{E}{2\pi I\,R\,R_{core}},(14)$$

For black holes R = Rcore

MAGNETIC FIELD OF SAGITTARIUS
(Sgr A*) BLACK HOLE

The event horizon experiment could proove Hawking-Bekenstein-Kerr theory[2,8]
The mass of sagittarius black hole found , but we do not know the horizon surface and radius .
MBH = 8.22x 10^{36} kg
The radius of black hole arises from Hawking-Bekenstein-Kerr surface of horizon
So RBH = 1.1x 10^{10} m
Using the algorIthm of my book "modified Hawking field" page 55-56 we get the folowing values:

Q = 4.4x 10^{28} Cb	C = 190 F
I = 4.9x 10^{15} A	B = 0.02 Tesla
E= 7.6x 10^{34} Joule	g = 5.7x 10^4 m/sec2
L = 6200 H	T = 6.9x 10^3 sec

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V = 2π R/T = 1x 10^7 m/sec , 3% of speed of light or 0.03 C
This rotation function is appropriate for stars like sun For this function rotation we use a few of six hypotheses .For black hole is better to use the following function :
Velocity of surface
$V=\sqrt{2gR}$ = 3.55x 10^7 m/sec ,
11% the speed of light or 0.11xC

$$V=\omega R\,,\quad \omega=\frac{2\pi}{T}\quad , T = 1950\ sec\ , period$$

All equations arise without relativity .
Using the known mass of Sgr A* Black hole and the radius of Bekenstein-Hawking-Kerr function we can find the magnetic field of Black hole near the horizon with out relativity[8] .It is using the same algorithm for Sun .

For Sun

the function is:

$$B=\frac{E}{I\,2\pi R^2/5},(15)$$

Transformation of Lorenz-Laplace force
I = intensity of current , R = radius of Sun , R/5 is the radius of core of Sun , E = energy of Sun's currents , B/10 = surface magnetic field , 10 is the analogy of rotation between surface and core .The result for core is 25 Gauss and for surface 3.8 Gauss.

For Earth

function (1) for $Il^2=IR^2$ gives 78 Gauss , for $Il^2=I(2\pi R)^2$ gives 2 Gauss , for $Il^2=I\,2\pi R^2$ gives 12 Gauss , for $Il^2=I\,2\pi R^2/2$ arises **24 Gauss** which is the experimental[6] value of 2010 , R/2 is the radius of core of Earth . Also the algorithm gives rotation 1.3 days .

For neutron stars a few are in agreement with that functions like burst nebule

Sgr A*

The algorithm gives 0.12 Tesla for $B=\frac{E}{IR^2}$, but the better function is : $B=\frac{E}{I\,2\pi R^2}$, so
the result 0.02 Tesla , with out relativity.

I choose the relativistic coefficient γ^3 , $\gamma=\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$,

v = 0.11c , γ = 1

I choose this coefficient for $I=\frac{q}{t}$ and R^2

For an observer far a way from horizon $B=\frac{B_0}{\gamma^3}$,

$$B_0=B=0.02\,Tesla=202\,Gauss \quad (16)$$

this value **202 gauss** is 500 times of Earth magnetic field [3] .

The algorithm use coefficient k_{51a} of all above functions with out strong participation of relativity.
The problem of that algorithm is that do not give the rotation of black hole than the rotation of Sun or Earth .In 2013 was observed 88% the speed of light of the gas
A good approximation could arises by the following way using relativity[4]**:**

$$V(t)=\frac{g.t}{\sqrt{1+g^2\frac{t^2}{c^2}}}$$ = 2.4x 10^8 m/sec or 0.8 C or 80% the speed of light , T = t

If we use the constant of ***Stoney*** $k_{51b}=\sqrt{\frac{G}{K_e}}=\frac{k_{51a}}{\sqrt{2\pi}}$ we get for currents 0.3 C ,
B= 200 Gauss and for rotation velocity 0.96 C

Conclusion

The algorithm can predict the basic parameters of a super massive star specially the nucleus and some planets like Earth .The Stoney coefficient is appropriate for solid bodies where gravity and electricity are equal [5] .The coefficient **k** $_{5.1a}$ is appropriate of states in nucleus matter of stars and some planets like Earth .The bodies are different by an index n=R/Rcore which includes the analogy between the total radius of star and nucleus .The prediction are very well for magnetic field and rotation

END

Bibliography

1.“Modified Hawking field” 2010 , Lambert academic publishing ISBN 978-3-8433-6512-3 ,page 55
2.2011 Fermi Symposium
3.Astrophysical Journal Letters. May 30, 2013 or https://www.sciencenews.org/article/magnetic-field-black-hole-measured
4. Book “ Gravity and Cosmology “ Theodoros N Tomaras page 39 for seminars in free web of Creta 2013-2014
5.Book “from Quark to Universe “ E. N. Oikonomou , University of Creta publishing ,(2012)
6.Buffett, Bruce A. (2010). "Tidal dissipation and the strength of the Earth's internal magnetic field".Nature 468
7.”Modern Physics “ R.A Serway , C.J. Moses , C.A. Moyer , University of Creta publishing,(2000)
8.”Paradox of Hawking field” , Alexandris Nikos ,(2012), http://gsjournal.net
9.”electromagnetic interaction of gravity” ,Zlatarov University , AOIJ (2006),vol.17,p2
http://www.acadjournal.com/2006/V17/part5/p2/
or http://gsjournal.net