**PERIOD OF ROTATION OF ROTATING BLACKHOLE**

**Please put:**

**Author name:**

**Author affiliation and address:**

**Author email:**

**Abstract**

**Keywords:**

**References:**

The Rotational Kinetic Energy of Rotating Black Hole is given by

**Ek = J2/2** **I** ……….(1)

Here **I** = Moment of Inertia of this Black Hole, **J** = Angular momentum of this Black Hole.

Spin parameter of rotating Black Hole is given by

**a = J/MC**……. (2)

Here **M** = Mass of this Black Hole, **J** = Angular momentum of this Black Hole .

Thus, (1) becomes **Ek = a2 M2 C2/2 I**……. (3)

Assuming the shape of rotating Black Hole to be spherical then **MI** about an axis passing through the

Diameter is given by **I = 2/5 MR2**

Here **R** = Radius of this Black Hole, **I**= moment of inertia of this blackhole.

Thus, (3) becomes **Ek = 5a2 M2 C2/4 MR2**

**Ek = 5a2 M2 C2/4R2**……. (4)

Rotational Kinetic Energy of rotating Black Hole is given by **Ek = 1/2 I ω2**

Here **ω =**angular velocity of this blackhole

**Ek = MR2 ω2/5**……. (5)

By Comparison of (4) & (5) we get

**ω =5aC/2 R2**……. (6)

Angular velocity of rotating blackhole is given by **ω =2 π/T**

Here **T=**Time period of rotation of this blackhole

Thus (6) becomes **T=4 π R2 /5aC** ...........(7)

Assuming the area of rotating black hole is given by **AB**=**4 π R2**

Thus (7) becomes **T=AB/5aC**

Here **T=** Time period of rotation of this blackhole, **AB=**Area of this blackhole**,a=**Spin parameter of this blackhole, **C** =speed of light in vaccum.