202(9): Refutations of Black Hole Theory

The basic problem again is the use of the incorrect metric:

$$ds^2 = c^2 d\tau^2 = c^2 dt^2 \left(1 - \frac{r_0}{r}\right) - \left(1 - \frac{r_0}{r}\right)^{-1} dr^2 - r^2 d\theta^2 \quad -(1)$$

This line element is obtained from:

$$ds^2 = c^2 d\tau^2 = m(r,t) c^2 dt^2 - n(r,t) dr^2 - r^2 d\theta^2 \quad -(2)$$

by wrongly assuming a symmetric connection. The connection is antisymmetric because:

$$[D_\mu, D_\nu] V^\sigma = -\left(\Gamma^\lambda_{\mu\nu} - \Gamma^\lambda_{\nu\mu}\right) D_\lambda V^\rho + R^\rho{}_{\sigma\mu\nu} V^\sigma \quad -(3)$$

If the connection were symmetric:

$$\Gamma^\lambda_{\mu\nu} =? \Gamma^\lambda_{\nu\mu} \quad -(4)$$

then

$$R^\rho{}_{\sigma\mu\nu} =? 0 \quad -(5)$$

from eq. (3), which shows that the connection has the same symmetry as the commutator:

$$[D_\mu, D_\nu] V^\sigma = -[D_\nu, D_\mu] V^\sigma \quad -(6)$$

$$\Gamma^\lambda_{\mu\nu} = -\Gamma^\lambda_{\nu\mu} \quad -(7)$$

In consequence of the error (4), the derivation of eq. (1) starts with:

$$\Gamma^\sigma_{\mu\nu} =? \frac{1}{2} g^{\sigma\rho} \left(\partial_\mu g_{\nu\rho} + \partial_\nu g_{\rho\mu} - \partial_\rho g_{\mu\nu}\right) \quad -(8)$$

but this is true only if the incorrect eq. (4) were true.

2) The derivation of eq. (1) proceeds by using the incorrect eq. (8) i.e. the definition of the Riemann tensor:

$$R^\rho{}_{\sigma\mu\nu} = \partial_\mu \Gamma^\rho_{\nu\sigma} - \partial_\nu \Gamma^\rho_{\mu\sigma} + \Gamma^\rho_{\mu\lambda}\Gamma^\lambda_{\nu\sigma} - \Gamma^\rho_{\nu\lambda}\Gamma^\lambda_{\mu\sigma} \quad -(9)$$

Note carefully that from eq. (3):

$$R^\rho{}_{\sigma\mu\nu} = - R^\rho{}_{\sigma\nu\mu} \quad -(10)$$

because the commutator is antisymmetric. For exactly the same reason, eq. (7) follows. The error (4) is the most fundamental and pervasive error of the Einstein theory. It is exactly the same as making the error:

$$R^\rho{}_{\sigma\mu\nu} \overset{?}{=} R^\rho{}_{\sigma\nu\mu} \overset{?}{\neq} 0. \quad -(11)$$

Eq. (1) is incorrect fundamentally because of this error.

The erroneous theory proceeds by defining the Ricci tensor:

$$R_{\sigma\mu} = R^\lambda{}_{\sigma\lambda\nu}. \quad -(12)$$

It is erroneously defined as:

$$R_{\sigma\mu} \overset{?}{=} R_{\mu\sigma}. \quad -(13)$$

In order to define eq. (1) it is erroneously assumed that

$$R_{\sigma\mu} \overset{?}{=} 0 \quad -(14)$$

and this is known as a "vacuum solution". Crothers has shown that eq. (14) cannot be true.

In order to derive eq. (2), eq. (1) is

3)

$$ds^2 = c^2 dt^2 e^{2\alpha(t,r)} - e^{2\beta(t,r)} dr^2 - r^2 d\theta^2 \quad -(15)$$

The erroneous eq. (14) is then used with eq. (15) to obtain:

$$\beta = \beta(r) \quad -(16)$$

$$\alpha = f(r) + g(t) \quad -(17)$$

The function $g(t)$ is eliminated by a dubious procedure:

$$dt \rightarrow e^{-g(t)} dt \quad -(18)$$

so that

$$e^{2f(r)} e^{2g(t)} \rightarrow e^{2\alpha(r)} \quad -(19)$$

This gives the result:

$$ds^2 = e^{2\alpha(r)} c^2 dt^2 - e^{2\beta(r)} dr^2 - r^2 d\theta^2. \quad -(20)$$

Using the incorrect eq. (14) again:

$$\alpha = -\beta + \text{constant}. \quad -(21)$$

It is then asserted without proof that

$$\alpha = -\beta. \quad -(22)$$

This procedure is called "scaling coordinates".

Eq. (22) results in:

$$e^{2\alpha}(2r\partial_1\alpha + 1) = 1 \quad -(23)$$

i.e.

$$\partial_1\left(re^{2\alpha}\right) = 1 \quad -(24)$$

i.e

$$e^{2\alpha} = 1 + \frac{\mu}{r} \quad -(25)$$

) So far, the Einstein field equation has not been used at all. It is used only to identify:

$$\mu = \frac{2GM}{c^2} \cdot \quad -(26)$$

However, the Einstein field equation uses the incorrect eq. (4) in the second Bianchi identity, so all of its solutions are incorrect.

The line element (1) is incorrect in many ways therefore. It does not give a precessing elliptical orbit at all, and this is very easy to show.

In light deflection and black hole theory the problems and errors are compounded by use of a null geodesic:

$$ds^2 =? \; 0. \quad -(27)$$

The orbital equation is however defined by:

$$c^2 = c^2\left(\frac{dt}{d\tau}\right)^2\left(1-\frac{r_0}{r}\right)-\left(1-\frac{r_0}{r}\right)^{-1}\left(\frac{dr}{d\tau}\right)^2-r^2\left(\frac{d\theta}{d\tau}\right)^2 \quad -(28)$$

and is incompatible with:

$$d\tau =? \; 0 \quad -(29)$$

for the obvious reason that the right hand side of eq. (28) is infinite.

Black hole theory can already be rejected outright for these reasons. It is based on a constant θ assumption and null geodesic, so:

$$ds^2 = ?\ 0 = \left(1 - \frac{2GM}{c^2 r}\right)c^2 dt^2 - \left(1 - \frac{2GM}{c^2 r}\right)^{-1} dr^2 \quad -(30)$$

so:
$$\frac{dt}{dr} = ?\ \pm\left(1 - \frac{2GM}{c^2 r}\right)^{-1} \quad -(31)$$

These errors are further compounded by arbitrary change of coordinate:

$$ct = ?\ \pm r^* + \text{constant} \quad -(32)$$

$$r^* = ?\ r + \frac{2GM}{c^2}\log_e\left(\frac{rc^2}{2GM} - 1\right) \quad -(33)$$

so:
$$ds^2 = ?\ \left(1 - \frac{2GM}{c^2 r}\right)\left(c^2 dt^2 - dr^{*2}\right) - r^2 d\theta^2 \quad -(34)$$

The "event horizon" is erroneously defined as:

$$r = ?\ \frac{2GM}{c^2 r}. \quad -(35)$$

On top of all these errors, all black hole metrics rely on the erroneous eq. (4), and were all shown to be incorrect in:

M. W. Evans, S. Crothers, H. Eckardt and K. Pendergast, "Criticisms of the Einstein Field Equation" (Cambridge International Science Publishing, www.cisp-publishing.com, Spring 2011)