

1) 110(4) : ECE Lemma Applied to "Schwarzschild Metric"

a) Consider:  $\gamma^0_0 = \left(1 - \frac{r_s}{r}\right)^{1/2} = e^{\alpha}$ ,  $\partial_0 \alpha = 0$ , - (1)

$\Gamma^0_{00} = 0$ .

$\square$  this case:  $\square = \partial^0 \partial_0 = \frac{1}{c^2} \frac{\partial^2}{\partial t^2}$  - (2)

and  $\square \gamma^0_0 = 0$  - (3)

So  $R = \omega^{\infty 2} - \partial^0 \omega^{\infty 0} = 0$  - (4)

and  $\frac{1}{c} \frac{\partial \omega^{\infty 0}}{\partial t} = -\omega^{\infty 0}$  - (5)

There are no eigenvalues of R and no  
quantized gravitational field.

b) Consider:  $\gamma^1_1 = \left(1 - \frac{r_s}{r}\right)^{-1/2} = e^{\beta}$  - (2)

Align  $r$  along  $Z$  and consider:

$\square \gamma^1_1 = R \gamma^1_1$  - (3)

$\square$  this case the relevant Christoffel symbol is

$\Gamma^1_{11}$ , with:

$\partial_1 \gamma^1_1 = (\Gamma^1_{11} - \omega^1_{11}) \gamma^1_1$  - (4)

$R = \partial^1 (\Gamma^1_{11} - \omega^1_{11}) + (\Gamma^1_{11} - \omega^1_{11})^2$ .

There are no quantum gravitational energy levels because the eigenfunction  $\gamma^1_1$  is not periodic. No quantized gravitation from SM.