

Schwarzschild Metric:

$$c^2 d\tau^2 = \left(1 - \frac{r_s}{r}\right) c^2 dt^2 - \left(1 - \frac{r_s}{r}\right)^{-1} dr^2 - r^2 (d\theta^2 + \sin^2 \theta d\phi^2)$$

Coordinates:  $(t, r, \theta, \phi)$

$$t = x^0 \quad r = x^1 \quad \theta = x^2 \quad \phi = x^3$$

Christoffel Symbols:

$$\Gamma_{\mu\nu}^0 = 0$$

$$\Gamma_{00}^1 = \frac{r_s}{2 \left( -1 - \frac{r_s}{r} \right)}$$

$$\Gamma_{11}^1 = \frac{r_s - 1}{2 \left( \frac{r^2}{r_s} - 2r + r_s \right)}$$

$$\Gamma_{22}^1 = \frac{2r^2}{r - r_s}$$

$$\Gamma_{33}^1 = \frac{-r \sin^2 \theta}{1 - \frac{r_s}{r}}$$

$$\Gamma_{12}^2 = -\frac{1}{r}$$

$$\Gamma_{33}^2 = -2r^2 \sin \theta \cos \theta$$

$$\Gamma_{13}^3 = \frac{1}{r}$$

$$\Gamma_{23}^3 = \cot \theta$$