

Relativity Report 2

Itsuki Miyane ID: 5324A057-8

Last modified: May 12, 2024

(1) The background line element

$$ds^2 = -\left(1 - \frac{2\mu}{r}\right) dt^2 + \left(1 - \frac{2\mu}{r}\right)^{-1} dr^2 + r^2(d\theta^2 + \sin^2 \theta d\varphi^2) \quad (0.1)$$

implies the metric is obtained as

$$g_{\mu\nu} = \begin{pmatrix} -(1 - 2\mu/r) & 0 & 0 & 0 \\ 0 & (1 - 2\mu/r)^{-1} & 0 & 0 \\ 0 & 0 & r^2 & 0 \\ 0 & 0 & 0 & r^2 \sin^2 \theta \end{pmatrix}. \quad (0.2)$$