

Coordinate System

$$(t, x, y, z)$$

Metric Tensor

$$g = \begin{pmatrix} a^2 t^2 - 1 & 0 & 0 & at \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ at & 0 & 0 & 1 \end{pmatrix}$$

Geodesic Equations

$$\begin{aligned} \ddot{t} &= 0 \\ \ddot{x} &= 0 \\ \ddot{y} &= 0 \\ \ddot{z} + at^2 &= 0 \end{aligned}$$

Christoffel Symbols (non-zero)

$$\Gamma_{tt}^z = a$$

Riemann Curvature Tensor (non-zero components)

none

Ricci Tensor (non-zero components)

none

Ricci Scalar

$$R = 0$$

Einstein Tensor (non-zero components)

none