Notations

Greek indices $\mu, \nu, ...$ run from 0 to 3.

Latin indices $i, j, ...$ run from 1 to 3.

We use Einstein’s summation convention.

Partial derivative $\partial_\mu = \frac{\partial}{\partial x^\mu}$.

Covariant derivative $\nabla_\mu$.

We follow the natural unit $c = \hbar = k_B = 1$, unless it is mentioned.