

The Einstein field equations, or Einstein's general theory of relativity, is a set of equations that mathematically describe the curvature of space-time around mass-energy. It is the most widely accepted and tested theory of gravity in science. In a nutshell, the equation states that the Ricci curvature scalar  $R$  of the gravitational field plus the cosmological constant divided by  $8\pi$  times the mass-energy tensor  $T$  of the source is equal to zero. Mathematically, the equation (in natural units) can be stated as:  $R - (1/2)g\rho\lambda = 0$  where  $R$  is the Ricci curvature scalar,  $g$  is the metric of the space-time, and  $\rho\lambda$  is the energy-momentum tensor of the source. This equation reflects the idea that gravity is a curvature in space-time caused by the presence of energy-momentum, and helps to explain phenomena such as black holes and the big bang.