# Cosmological Model Based on Gauge Theory of Gravity

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Abstract: A cosmological model based on gauge theory of gravity is proposed in this paper. Combining cosmological principle and field equation of gravitational gauge field, dynamical equations of the scale factor $R(t)$ of our universe can be obtained. This set of equations has three different solutions. A prediction of the present model is that, if the energy density of the universe is not zero and the universe is expanding, the universe must be space-flat, the total energy density must be the critical density $\rho_c$ of the universe. For space-flat case, this model gives the same solution as that of the Friedmann model. In other words, though they have different dynamics of gravitational interactions, general relativity and gauge theory of gravity give the same cosmological model.

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