

Gauge Model with Massive Gravitons

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Abstract: Gauge theory of gravity is formulated based on principle of local gauge invariance. Because the model has strict local gravitational gauge symmetry, and gauge theory of gravity is a perturbatively renormalizable quantum model. However, in the original model, all gauge gravitons are massless. We want to ask whether there exist massive gravitons in Nature. In this paper, we will propose a gauge model with massive gravitons. The mass term of gravitational gauge field is introduced into the theory without violating the strict local gravitational gauge symmetry. Massive gravitons can be considered to be possible origin of dark energy and dark matter in the Universe.

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Key words: gauge field, quantum gravity, dark matter and dark energy

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