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Degravitation and Cosmic Acceleration

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Abstract

We present a class of modified theories of gravity in which vacuum energy is screened or degravitated. We argue that any such theory must, at the linear level, reduce to a theory of massive or resonance graviton. The immediate implication is that there are new degrees of freedom, associated with the extra polarization states of the graviton, the most interesting of which is the helicity-0 or longitudinal mode. Phenomenologically, this mode leads to a fifth force which is suppressed in regions of high density but kicks in on large ($>Mpc$) scales. We discuss the implications for cosmological evolution and structure formation.