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Modified Gravity and Observational Constraints

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There has been a lot of interest in theories that modified Einstein gravity but which reduce to general relativity in certain limits. Such modified gravity theories predict the existence of a fifth force. There are severe constraints on fifth forces from solar system observations. However there has been a recent resurgence of interest in modified gravity theories with the advent of sophisticated screening mechanism whereby the fifth force is suppressed in the solar system but not necessarily beyond. I will review some models of modified gravity and display the screening mechanism. I will then discuss how such models can be tested and constrained using laboratory experiments.

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