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Fundamental Physics Tests in Astrophysics

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A promising testing ground for fundamental physics is provided by the high precision measurements and observations in the solar system and beyond. Searches for hypothetical tiny deviations from perfect spacetime symmetry, which may give a glimpse of a fundamental theory of physics, have interested a growing number of researchers worldwide. This area of research is reviewed and modern tests such as lunar laser ranging, pulsar observations and gravitational wave observations are discussed. Results are reported using a systematic framework that describes generic violations of spacetime, in particular CPT and Lorentz symmetry.