

Constraints on parameterized post-Einsteinian framework from binary pulsar observations

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The parameterized post-Einsteinian (ppE) formalism was proposed to search for generic deviations from general relativity [1]. In this talk we present constraints on the ppE framework obtained from binary pulsar observations. We use measurements of the orbital period decay and post-Keplerian parameters to put bounds on the magnitude of the ppE parameters. We improve upon the current constraints on the ppE corrections by performing parameter estimation in a Bayesian framework and studying the effect of mass priors. Gravitational wave data from coalescing binaries can also be used to do a systematic Bayesian study of the ppE framework and the bounds that we have obtained can be used as an informative prior for such an analysis.

References

- [1] N. Yunes and F. Pretorius, *Fundamental theoretical bias in gravitational wave astrophysics and the parametrized post-Einsteinian framework*, Phys. Rev. D **80**, 122003 (2009).