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VSL-Gravity in ligth of PSR B1913+16 Full Data Set: Upper limits on graviton mass and its theoretical consequences

Very Special Linear Gravity (VSLG) is an alternative model for linearized gravity, featuring massive gravitons while still retaining two physical degrees of freedom. Recently, its gravitational period decay dynamics has been calculated through effective field theory techniques. In this work, we aim to test this new model by a complete Bayesian analysis over the dataset of the PSR B1913+16 binary. We found a 95% CL upper bound for the graviton mass m_g around $10^{-19}\ eV$ while also obtaining a relevant discrepancy for the predicted value of the mass of one of the two companion stars. Finally, we discuss some potential ripercussions for a non-zero graviton mass at the cosmological level.

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