

Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Spontaneous Scalarization with Dynamical General Relativity

FETHI M RAMAZANOGLU, FRANS PRETORIUS, Princeton University — Even though scalar-tensor theories are among the best-known alternatives to general relativity, solar system and binary pulsar observations rule out a large portion of their parameter spaces. Spontaneous scalarization is a non-perturbative case of scalar-tensor theories for which large deviations from general relativity can be observed in the regions of high energy density in compact stars, while the known observational bounds can be satisfied far away from the compact objects. We study this scenario with full numerical relativity for various cases of compact object mergers, and deduce the optimal ways of testing general relativity and/or further restricting the parameter space of alternative theories from observational data.

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Date submitted: 11 Jan 2013

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