

Gravitational Waves in Scalar-Tensor Theory to one-and-a-half post-Newtonian order

lundi 11 octobre 2021 16:45 (15 minutes)

We compute the gravitational waves generated by compact binary systems in a class of massless scalar-tensor (ST) theories to the 1.5 post-Newtonian order beyond the standard quadrupole radiation in general relativity (GR). Using (and adapting) the multipolar-post-Minkowskian and post-Newtonian formalism in GR we obtain in particular the tail and non-linear memory terms associated with the dipole radiation in ST theory. The multipole moments and GW flux are derived for general orbits and compared to previous results in the literature. In the case of quasi-circular orbits, we present ready-to-use templates for the data analysis of detectors.

Authors: TRESTINI, David (IAP et LUTH); BLANCHET, Luc (C.N.R.S.); BERNARD, Laura

Orateur: TRESTINI, David (IAP et LUTH)

Classification de Session: Groupe de Travail: Tests de la relativité générale et théories alternatives