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Magic Monday Journal Club

Mardi 14 Novembre 2017, 14 :00
LPT, 114(P-cube joint LPT/LPTHE/IPhT seminar. Followed by journal club discussing gravitational wave constraints on modified gravity theories.)
Domaines : hep-ph

Titre : *Gravitational waves and the two-body problem in general relativity*

Orateur : **Luc Blanchet (IAP)**

Résumé : *The gravitational wave detectors LIGO/VIRGO have discovered the signals generated by the coalescence of compact binary systems (made of black holes or neutron stars) at astronomical distances. The theoretical and numerical works on the two-body problem in general relativity play a crucial role when deciphering and interpreting the gravitational wave signals. In this talk, after a general review on gravitational waves and the problem of motion, we shall present the state-of-the-art on approximation methods in general relativity, such as the famous post- Newtonian expansion, which is an expansion when the orbital velocity of the compact objects is small with respect to the speed of light. We shall show how important is this approximation for the GW detections, notably the recent binary neutron star event, and discuss the latest developments in the field.*