

Institut Ruđer Bošković
ZAVOD ZA TEORIJSKU FIZIKU
Bijenička c. 54
ZAGREB, HRVATSKA

SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

Introduction to Quasinormal Modes of Neutron Stars in General Relativity and in R^2 Gravity

Fech Scen Khoo
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Datum: utorak, 18. prosinca 2018.

Vrijeme : **14 sati c.t.**

Mjesto: IRB, predavaona I krila

Abstract:

I will discuss some aspects of the research related to my short-term research stay at the University of Oldenburg. We will mainly touch upon the general basics, beginning with the theory of General Relativity (GR) and the recently observed astrophysical events that verified the predictions of the theory, with one of the accomplishments being the detection of a binary neutron star merger. The gravitational waves during the ringdown phase are emitted at characteristic frequencies that can be calculated using the quasinormal modes. In spite of the success of GR so far, there have been proposals of modified gravity theories which attempt to overcome the shortcomings of GR in view of the dark energy for instance. We will see how the analysis in an alternative gravity theory known as R^2 gravity works in the quasinormal mode formalism.

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