



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
COLLOQUIUM

Searching For New Physics with Gravitational Waves from Heavy Compact Binary Mergers

by



Dr. Juan CALDERÓN BUSTILLO
Galician Institute of High Energy Physics (IGFAE)
University of Santiago de Compostela, Spain

Date: April 20, 2021 (Tuesday)

Time: 3:30 - 4:30 p.m.

Join ZOOM Meeting: <https://qrgo.page.link/9qhJD>



ALL INTERESTED ARE WELCOME

Abstract

After 50 detections of gravitational waves emitted by the merger of compact binary objects, gravitational-wave astronomy is now a firmly established field that delivers breakthrough-level discoveries on a yearly basis. However, on the one hand, most of these observations have revealed phenomena that we already expected. On the other hand, none of these observations has yet challenged our current understanding of Nature given by General Relativity and the Standard Model of Particle Physics. Heavy compact binary mergers, with masses above 100 solar masses, appear as the most promising gravitational-wave scenarios to reveal new physics, but also the most challenging to detect. In this talk I will describe some of the physics that such events can reveal, the challenge that their detection poses and describe preliminary evidence for dark matter in current such observations.