



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
SEMINAR

Have LIGO and Virgo Observed Dark Matter?

by

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

Date: April 21, 2021 (Wednesday)

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

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



ALL INTERESTED ARE WELCOME

Abstract

The LIGO and Virgo collaborations recently reported the short gravitational-wave signal GW190521, interpreted as the merger of black holes, one populating the pair-instability supernova gap, to form a remnant black hole of $M_f \sim 142 M_\odot$ at a luminosity distance of $d_L \sim 5.3$ Gpc. With barely visible pre-merger emission, however, GW190521 merits further investigation of the pre-merger dynamics and even of the very nature of the colliding objects. In this talk I will discuss alternative scenarios that have been proposed for the source of this very special gravitational-wave signal. In particular, I will show that the signal is consistent with the merger of two boson stars, estimating a constituent boson mass of $8.72^{+0.73}_{-0.82} \times 10^{-13}$ eV. If confirmed by future observations, GW190521 would provide the first evidence for a long sought dark matter particle.