

VII Leopoldo García-Colín Mexican Meeting on Mathematical and Experimental Physics



Contribution ID: 8

Type: **not specified**

CARLOS HERDEIRO: Black holes and ultralight bosonic fields

Wednesday, 19 February 2020 11:30 (1 hour)

Hypothetical ultralight bosonic particles have been suggested as (fuzzy) dark matter candidates. Such particles will spontaneously form macroscopic bosonic halos around spinning astrophysical black holes (BH), via an energy extraction process called superradiance, transferring part of the mass and angular momentum of the BH into the halo. I consider the phenomenology of this process, and of the equilibrium state attained. The latter is metastable. It may decay via gravitational wave emission, or via the growth of new superradiant modes. I discuss the opportunities to test these models with Gravitational Wave searches or black hole imaging. I also discuss the dynamics of relativistic bosonic stars, that describe self-gravitating lumps of these ultralight bosonic particles.

Session Classification: PLENARY TALKS

Track Classification: SYMPOSIUM ON BLACK HOLES AND GRAVITATIONAL WAVES