

Black hole superradiance in Bose-Einstein condensates: amplification and instabilities

Friday, 25 October 2019 15:43 (1 minute)

Superradiance is a radiation enhancement effect occurring by energy extraction from a rotating spacetime. Being a kinematical effect it can also happen in gravitational analogues, where the energy for the amplification is extracted from the fluid motion. We discuss such an effect in Bose-Einstein condensates with different geometries and show that the well known instability of multiply quantized vortices can be attributed to a dispersive version of the ergoregion instability based on superradiant amplification in rotating spacetimes with no horizon.

Summary

Primary author: GIACOMELLI, Luca (Università di Trento and CNR-INO BEC Center)

Presenter: GIACOMELLI, Luca (Università di Trento and CNR-INO BEC Center)

Session Classification: Posters and Coffee

Track Classification: Cosmology