Contribution ID : **3** Type : **not specified**

Probing ultralight bosons with binary black holes

Clouds of ultralight bosons can form around spinning black holes through superradiance. In this talk, we shall discuss the dynamical evolution of such clouds in binary black hole systems. Focusing on comparable mass binaries, we demonstrate that the cloud can resonantly transfer between the two black holes and eventually form a common envelope during the late inspiral phase. We also study the implications on orbital dynamics and the signatures in gravitational waves, which provide a unique probe of the new physics.

Primary author(s) : Dr ZHANG, Jun (International Center for Theoretical Physics Asia-Pacific)

Presenter(s) : Dr ZHANG, Jun (International Center for Theoretical Physics Asia-Pacific)