

## Poster: Signatures of ultralight bosons in the orbital eccentricity of binary black holes

It is well known that clouds of ultralight particles surrounding black holes produced by the superradiant instability can experience Landau-Zehner transitions if the black hole is part of a binary system.

We study the effect of orbital eccentricity, backreaction of the cloud onto it and observational possibilities with future gravitational-wave detectors like the Laser Interferometer Space Antenna, as well as the planned deciHertz gravitational-wave observatories. For black hole binaries with chirp masses below  $10 M_{\odot}$ , such effects would provide strong evidence for the existence of a new particle of mass between  $10^{-13} - 10^{-11}$  eV.

**Would you be interested in presenting a poster? (this will not impact the decision on your talk)**

yes

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**Session Classification:** Reception and Poster Session