

Searching for Ultra-light Bosons with Stellar Tidal Disruption Events

Wednesday 8 June 2022 16:15 (15 minutes)

Stars that pass close to the supermassive black holes located in the center of galaxies can be violently disrupted by tidal forces, leading to flares that are observed as bright transient events in sky surveys. The rate for these events to occur depends on the black hole spins, which in turn can be affected by ultra-light bosons due to superradiance. In this talk, I will show that searches for stellar tidal disruptions have a significant potential to uncover the existence of ultra-light bosons. In particular, we find that upcoming stellar tidal disruption rate measurements by LSST can be used to either discover or rule out bosons with masses ranging from 10^{-20} to 10^{-18} eV.

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Session Classification: Parallel