

## Micro-Tidal Disruption Events in Star Clusters

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In dense star clusters stars may be disrupted in close encounters with stellar mass black holes. These transients are addressed as “micro-Tidal Disruption Events”(TDEs). To date, micro-TDEs have not yet been observed but they are promising multi-messenger sources predicted to be detected by next gravitational waves (GW) observatories (i.e. DECIGO) and future all-sky surveys (i.e. LSST, ULTRASAT, BlackGEM etc) up to several Gpc.

In this contribute I will discuss micro-TDEs originated in young star clusters from a dynamical perspective. I have performed a suite of numerical high-precision direct N-body simulations of massive collisional young star clusters (YSCs) with the state-of-the-art code PeTar. PeTar is an N-body code which is coupled with up-to-date stellar population synthesis codes, which are fundamental to treat star and BH progenitors. I will present some preliminary results about the population of micro-TDEs originated in YSCs through hyperbolic-parabolic encounters between single stars and BHs and, furthermore black hole binaries.

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