Contribution ID: **418** Type: **Invited talk in a parallel session**

EMRI+TDE=QPE: Star-Disc Interaction around Massive Black Holes and Quasi-Periodic Eruptions

Tuesday, 9 July 2024 15:40 (20 minutes)

Quasi-periodic eruptions (QPEs) are an emerging class of high amplitude bursts of X-ray radiation, repeating on a hours-day timescale, recently discovered near the central supermassive black holes (SMBHs) of a few low-mass galaxies. I will briefly review our current theoretical understanding of QPEs, and will focus on a scenario involving a main-sequence star repeatedly colliding with an accretion flow feeding the SMBH. I will demonstrate how this model naturally reproduces the observed period, luminosity, emission temperature, duration, occurrence rate of QPEs, as well as the association between QPEs and other types of transients occurring around SMBHs. I will also discuss the implications of the observations and of our model for probing the dynamics around SMBHs, accretion physics around SMBHs, the rate of extreme mass ratio inspirals (EMRIs), and the discovery prospects of related repeating nuclear transients.

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