

## Dynamics and dephasing of EMRI systems in realistic accretion discs.

*Tuesday 24 June 2025 14:00 (30 minutes)*

I will present a brief overview of the state-of-the-art in the topic of environmental effects for gas embedded EMRI systems, focusing on the potential and the challenges of extracting GW phase shifts from realistic signals. I will demonstrate how pushing the modelling of EMRI interaction with the gas medium beyond the commonly adopted migration torque and dynamical friction prescriptions can reveal richer observables. In particular, I will share some recent results on epi-cyclical resonances between the EMRI orbit and the accretion disc torques. They suggest that mildly eccentric EMRIs in accretion discs will dephase by 10 to 100 times more than what was previously expected.

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