Contribution ID: **28** Type: **not specified**

Tidal heating in eccentric orbit

Tuesday, 17 September 2024 15:00 (20 minutes)

Tidal heating in a binary black hole system is driven by the absorption of energy and angular momentum by the black hole's horizon. This phenomenon becomes particularly significant during the late stages of an extreme mass ratio inspiral (EMRI). Past analyses have largely focused on quasi-circular inspiral geometry, with some of the most detailed studies looking at equatorial cases. I will discuss the importance of tidal heating in equatorial EMRIs with generic eccentricities. Our results suggest that accurate modeling of tidal heating is crucial to prevent significant dephasing and systematic errors in EMRI parameter estimation. Alongside a phenomenological model for EMRIs around exotic compact objects by parameterizing deviations from the black hole picture in terms of the fraction of radiation absorbed compared to the BH case will be discussed. I will also discuss the observable impact. It will be primarily based on arXiv:2404.04013v2 [gr-qc].

Primary author: DATTA, SAYAK

Presenter: DATTA, SAYAK

Session Classification: Contributed Talks