Contribution ID: **76** Type: **not specified**

Tidal heating in eccentric and inclined orbits

Thursday 6 July 2023 09:20 (20 minutes)

With the observation of the multiple binary inspirals, we begin to question whether the components of the binary are black holes or some exotic compact objects (ECOs). The black holeness or the deviation from it can be tested in several ways. The distinguishing feature of a black hole from ECOs in the presence of the horizon. This surface acts as a one-way membrane, that absorbs energy. Due to this different behavior from ECOs, in the last stages of an inspiral black holes exchange energy. These backreact on the orbit, transferring energy and angular momentum from their spin into the orbit. This effect is called tidal heating. I will discuss the impact of tidal heating due to the inclination and eccentricity of an orbit. It can be used as a test for the presence of the horizon. I will discuss how this will help us measure the reflectivity of the compact objects.

Presenter: DATTA, Sayak

Session Classification: Thursday Morning