Contribution ID: **295** Type: **Oral**

# Tidal deformation of dynamical horizons in binary black hole mergers and its imprint in their gravitational radiation

It is widely believed that in the post-Newtonian approach, the asymptotic gravitational fields of non-spinning black holes do not deform under the influence of its companion. Would their horizons deform? In this talk, we present an alternate approach to the problem of tidal deformations of black holes in binary mergers using the source multipole moments of their dynamical horizons and numerical relativity. We probe their deformations in the strong field regime without any limitations, all the way up to merger. We point out that several interesting features of the binary black hole dynamics are encoded in these deformations. Finally, we discuss the existence of strong correlations between the deformations and the dynamics at future null infinity.

## Email

vaishakprasad@gmail.com

## Affiliation

ICTS-TIFR, Bengaluru

**Author:** PRASAD, Vaishak (International Centre for Theoretical Sciences - Tata Institute of Fundamental Research)

**Presenter:** PRASAD, Vaishak (International Centre for Theoretical Sciences - Tata Institute of Fundamental Research)

**Session Classification:** Gravitational Waves

**Track Classification:** Gravitational Waves