

## **ICTS Postdoc/Graduate Student Seminar Series**

- Title** : Interpreting gravitational wave observations of binary black holes:  
Determining the properties of the final black hole
- Speaker** : Nathan Johnson-McDaniel, ICTS-TIFR, Bangalore
- Date** : Friday, November 25, 2016
- Time** : 11:15 AM
- Venue** : Emmy Noether Seminar Room, ICTS Campus, Bangalore
- Abstract** : The Advanced configuration of the Laser Interferometer Gravitational-Wave Observatory (LIGO) detected two binary black hole coalescences during its first observing run, and is expected to detect several more in its upcoming second observing run. It is possible to infer many properties of these systems by comparing the detected gravitational waveforms to theoretical models. Specifically, I will describe how to infer the final mass and spin of the final black hole accurately, even in complicated cases involving precessing spins. I will also discuss the prospects for inferring the recoil velocity of the final black hole via gravitational wave observations. This recoil is due to anisotropic gravitational wave emission and can have a magnitude of close to 5,000 km/s in extreme cases.

**Note:** This will be an ongoing biweekly seminar series (Fridays, 11:15 am) by the ICTS postdocs and graduate students