

Contributed Talk

Name: Mostafizur Rahman

Position: Post-Doc/Research Fellow

Affiliation: Indian Institute of Technology, Gandhinagar

Title: Ringdown properties of compact objects

Abstract: Black holes are an integral part of the standard model of astrophysics and cosmology. However, their existence poses some serious fundamental problems. In recent years, several horizonless compact object models were proposed to address those issues. As the gravitational wave detectors started to observe more and more merger events with a large signal-to-noise ratio, gravitational wave spectroscopy could hold the key to uncover the existence of these objects. This is because the late time ringdown signals of horizonless compact objects differ from that of the black holes. In this talk, I will discuss the ringdown properties of compact objects and compare them with those obtained in the black hole scenario. Since the internal structure and the equation of state of these compact objects are largely unknown, we employ the membrane paradigm to obtain appropriate boundary conditions for the perturbations of these objects. This model can describe the ringdown properties of a large variety of compact objects.