

Abstract for GR22

BBH & “EM” fields: EM counterparts and beyond GR

Pablo Bosch
Perimeter Institute & University of Waterloo
PhD candidate
pbosch@perimeterinstitute.ca

March 1, 2019

Abstract

As gravitational wave detectors become increasingly sensitive and the era of multi-messenger astronomy continues to flourish, richer scenarios from the vacuum GR binary black hole (BBH) merger paradigm make a compelling case to be envisioned. We focus on the dynamics of binary black holes in force-free scenarios and in alternative theories of gravity, specifically Einstein–Maxwell–Dilaton (EMD) theories.

In the context of force-free electrodynamics, the evolution of misaligned binary black holes within a plasma can trigger jets, some of which could grow by means of a mechanism akin to the Herzenberg dynamo, even within the stellar mass BBH.

We also consider the dynamical evolution of BBH mergers in EMD theories. In particular, we focus on the modification of the merger’s waveform in comparison to the GR scenario and the implications regarding their endstates.

Main results from the above discussed topics will be presented.