

Project Title:

Understanding compact binaries through gravitational wave observations

Supervisor(s):

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Project Description:

In the coming years, the advanced LIGO and Virgo observatories are expected to provide the first direct detection of gravitational waves. The advanced LIGO detector began observing for the first time in late 2015 and advanced Virgo will join the search in 2016. Thus, there is a real chance that the first detection will occur during the course of this PhD. The most promising source is the inspiral and merger of compact binaries comprised of neutron stars and/or black holes.

The goal of this project is to understand the properties of binary mergers that we will measure with gravitational waves – for example merger rates, masses and spins of the binary components – and how this will affect our astrophysical understanding of such systems. It will involve contributing to the development of a search capable of detecting these systems and accurately extracting their parameters. Finally, it will involve using the analysis developed to search for these signals in the advanced LIGO and Virgo data, and to provide an astrophysical interpretation of the results.

To discuss this project further, please contact:

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