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Meg Millhouse

University of Melbourne, Australia

Bayesian inference in gravitational-wave data analysis

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Bayesian inference is used widely in gravitational-wave (GW) astrophysics. Bayesian methods are used for GW signal detection, the characterization of that signal and its parameters, and to make inferences about the population properties of binary black holes and neutron stars. This talk will give an overview of gravitational waves and their sources, and present some of the methods and applications of Bayesian inference in GW data analysis. We will give an overview of how parameters are inferred for systems of binary black holes and neutron stars. We will also discuss methods for detecting GW signals with no a priori assumption on the signal morphology, and distinguishing these signals from instrumental noise.