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Probing the Dark Universe with Compact inspiraling Binaries

Monday, 21 January 2019 16:00 (45 minutes)

Abstract: Gravitational wave (GW) astronomy provides us a unique chance to probe invisible matter in the universe. In this talk we introduce several ways of probing dark ambient matter of compact binaries through GWs. We first present some analytical understanding of the distribution of binaries' orbital parameters and its relation to binaries' formation channels. Then, we describe how the barycenter motion of a binary, potentially visible to space GW telescopes, can serve as a direct probe of the ambient density. Finally, we show how the GWs from compact binaries can be used to probe/constrain dark matter with a long range force.

Presenter: Dr XIANYU, Zhong-Zhi (Harvard University)

Session Classification: dark matter