

Unmodeled source reconstruction with gravitational waves

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Parameter estimation of all gravitational-wave signals detected so far relies on precise source models. They are usually limited to already known objects making them unsuitable for interpreting new unknown sources. Current and future gravitational-wave detectors will give unparalleled amounts of data with prospects of observing unknown objects, therefore an alternative method for extracting source properties is needed. In this talk I will present a novel method to reconstruct source properties by decomposing the source mass density perturbation. Our algorithm is able to reconstruct compact binary coalescences such as GW150914, as well as several other example cases. I will end the talk by discussing the method's limitations and possible improvements.