

Abstract Submitted
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Rapidly extracting astrophysics from gravitational-wave observations in the Advanced Detector era RORY SMITH, Cal Inst of Tech (Caltech), PRISCILLA CANIZARES, SCOTT FIELD, CHAD GALLEY, JONATHAN GAIR, MANUEL TIGLIO, VIVIEN RAYMOND COLLABORATION — Coalescing compact binaries - consisting of neutron stars and/or black holes - are the most promising source of gravitational waves for the next-generation gravitational-wave detectors Advanced LIGO and Advanced Virgo. Accurately measuring the astrophysical parameters of these sources is crucial for precision astrophysics and astronomy with gravitational waves, but the computational times of such analyses can be prohibitively long. Here we present a new approach to parameter estimation based on “reduced order modeling” (see plenary overview talk by Tiglio: “Reduced Order Modeling in General Relativity”). This approach can enable low latency parameter estimation on time scales of minutes to hours. We will discuss recent results of our approach for extracting the astrophysical parameters of binary neutron stars in mock Advanced LIGO/Virgo data. We will also discuss extensions of the approach to binary black hole parameter estimation where the spins of the black holes can be large.

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