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A Hierarchical Approach to Rapid Gravitational Wave Parameter Estimation BENJAMIN FARR, VICKY KALOGERA, Dept of Physics and Astronomy & Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA), Northwestern University — The rapid localization of a gravitational wave source is crucial for successfully detecting electromagnetic counterparts. Techniques currently used for analyzing data collected from ground-based detectors assume both objects to be non-spinning, potentially introducing large uncertainties and biases in sky position. Markov Chain Monte Carlo methods have proven capable of estimating the parameters of a fully spinning, circularized compact binaries with high latency, and of rapid sky localization when operating in a lower-dimensional parameter space. We present a technique to connect the two domains, providing rapid yet potentially biased sky localizations within minutes, while slowly increasing the dimensionality of the parameter space in order to account for spin and reduce biases.

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None

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