

Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Rapid Realization of the Stochastic Gravitational Wave Signal due to Galactic Mergers TREY MCNEELY, SEAN MCWILLIAMS, West Virginia Univ — Mergers of massive galaxies often result in a merger between their central supermassive black holes. These merging binaries will generate gravitational waves, all of which add up to create a stochastic gravitational-wave background in the nanohertz range. Full realization of this signal requires generation of a large population of binaries ($N=10^{11}$). Each of these binaries must be assigned a number of relevant parameters, including individual masses. By manipulating the distributions from which individual black holes are drawn, we demonstrate a method which allows generation of the full population in minutes rather than weeks. This forms the basis for analysis requiring multiple realizations of the background, such as constraining the variance of the stochastic signal.

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Date submitted: 29 Sep 2016

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