Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Highly Eccentric EMRI Confusion Noise in LISA AARON JOHNSON, University of Wisconsin - Milwaukee, DANIEL OLIVER, DANIEL KENNEFICK, University of Arkansas — Subthreshold extreme mass ratio inspirals (EMRIs), while not individually resolvable, collectively will constitute a noise source for LISA, the future space-based gravitational wave detector. Previous characterizations of this noise source have used a Newtonian order approximation. We seek to improve this estimate by using a frequency domain, Teukolsky based code which is available on GitHub (https://github.com/AaronDJohnson/fbtpoint) and is currently under active development. Additionally, we use the semi-relativistic approximation, sometimes called the numerical kludge. EMRI formation may lead to highly eccentric orbits, where a gravitational wave burst is emitted only upon closest approach to the black hole and will not be seen again in LISAs lifetime. This type of subthreshold signal requires the computation of a large number of radial modes, some of which are negligible. Here we discuss strategies for skipping the negligible modes and the methods available to compute gravitational waves from highly eccentric EMRIs.

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Date submitted: 08 Jan 2021 Electronic form version 1.4