

Abstract Submitted
for the APR18 Meeting of
The American Physical Society

Search methods for dipole gravitational waves from asymmetric supernovae FRANKLIN FELBER, Starmark, Inc — Gravitationally unbound mass quadrupoles like asymmetric supernovae, despite having constant mass dipole moment, nevertheless produce dipole perturbations of gravitational fields that do not completely destructively interfere as they propagate to the radiation zone [1]. Complete interference is prevented by first-order relativistic effects, such as phase differences and frequency shifts. An exact expression for the weak field of a mass in arbitrary relativistic motion is used to estimate the dipole gravitational power radiated by asymmetric supernovae [2]. Potential near-term search methods for these single-pulse dipole gravitational waves, with frequencies ranging from $<1 \mu\text{Hz}$ to $>10 \text{ mHz}$, include astrometry using the Gaia space telescope [3]. [1] F. S. Felber, *Einstein's Inertial Field* (Starmark Physics, San Diego, 2016), Ch. 11. [2] F. S. Felber, <https://arxiv.org/abs/1002.0351> (2010). [3] C. J. Moore *et al.*, Phys. Rev. Lett. **119**, 261102 (2017).

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Date submitted: 10 Jan 2018

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