

Abstract Submitted
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Looking for angular information in the nHz gravitational wave background with harmonic space analysis of redshift maps ELINORE ROEBBER, McGill University, GILBERT HOLDER, McGill University; University of Illinois at Urbana-Champaign — I will discuss an alternate framework for treating the angular information in the nanohertz gravitational wave background (GWB). Population models suggest that the GWB produced by binary supermassive black holes will be mostly confused, but that individual frequency bins may be dominated by a single loud source. We consider two toy models to span the range of resolvable to confused GWBs: a single source and a statistically isotropic Gaussian random field. In our alternate framework we treat both cases consistently by analyzing the full-sky redshift field induced by the GWs at the earth in harmonic space. As an example of the utility of this approach, the power spectrum of the redshift maps is the harmonic space analogue of the Hellings and Downs curve. Variance in the redshift power spectrum allows us to characterize the expected variance around the Hellings and Downs curve.

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