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Spectral Cauchy Characteristic Extraction: A New Algorithm for Gravitational Wave Propagation CASEY HANDMER, BÉLA SZILÁGYI, California Institute of Technology — We present a spectral algorithm for solving the full nonlinear vacuum Einstein field equations in the Bondi framework. Developed within the Spectral Einstein Code (SpEC), we demonstrate spectral Cauchy Characteristic Extraction (CCE), a thorough method for obtaining valid gravitational waveforms from existing and future astrophysical simulations. We demonstrate the new algorithm's stability, convergence, and agreement with existing CCE methods. We explain how an innovative spectral approach enables greatly improved computational efficiency.

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