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Gravitational Wave Propagation in Perturbed FRW Cosmologies: The Gravitational Integrated Sachs-Wolfe Effect PABLO LAGUNA, Georgia Institute of Technology, SHANE LARSON, Utah State University, NICOLAS YUNES, Princeton University — Gravitational waves carry with them in exquisite detail knowledge of the source structure. For the case of inspiraling binary systems, the radiation carries with it information of the component masses and spins, the orbital angular momentum, energy and orientation with respect to the line-of-sight and the system's luminosity distance. For sources at large cosmological distances, gravitational waves will carry in addition an imprint of the spacetime background thorough which they propagate. The dominant effect is the cosmological redshift due to the overall expansion of the Universe. We present results of the secondary cosmological effect on gravitational waves due to intervening inhomogeneities, in other words, the gravitational counterpart of the integrated Sachs-Wolfe effect associated with CMBR photons.

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