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Exciting black hole modes via misaligned coalescences: II. Characterizing the mode content of late time coalescence waveforms[1] HALSTON LIM, Massachusetts Institute of Technology, GAURAV KHANNA, University of Massachusetts Dartmouth, SCOTT HUGHES, Massachusetts Institute of Technology — Using the inspiral and plunge trajectory computed using a generalized version of the Ori-Thorne algorithm, we use a time-domain black hole perturbation theory code to compute the corresponding gravitational waves. The last cycles of these waveforms are a superposition of Kerr black hole quasi-normal modes. In this talk, we will present calculations of the "excitation factors" of quasi-normal modes, and will examine how the modes' excitations vary as a function of source parameters like the larger black hole's spin and the geometry of the smaller body's inspiral and plunge trajectory. Our results indicate that measuring multiple ringdown modes of black hole coalescence gravitational waves may provide useful information about the source's binary properties, such as the misalignment of the orbit's angular momentum with black hole spin.

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