Choosing precessing black hole binary simulations that cover the waveform space[1] RICHARD O'SHAUGHNESSY, University of Wisconsin-Milwaukee, DEIRDRE SHOEMAKER, JAMES HEALY, ZACHARY MEEKS, Center for Relativistic Astrophysics, Georgia Tech — Numerical simulations of merging black hole (BH) binaries can provide a limited number of accurate waveforms for generic precessing binaries. Ideally, these simulations should thoroughly sample the emission-direction-dependent waveforms, through suitable choices for the six spins and two masses. By locally fitting the pairwise overlap versus spins and masses, we describe an iterative, stochastic procedure for selecting new initial configurations given waveforms derived from existing ones. Limiting attention to comparable-mass intermediate-mass BHs ($100 - 1000 M_\odot$), we summarize how well existing simulations cover the parameter space, as well as the number and nature of new simulations required both for detection and parameter estimation.

Richard O'Shaughnessy
University of Wisconsin-Milwaukee

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