Constructing binary black hole initial data with high mass ratios and spins SERGUEI OSSOKINE, University of Toronto, FRANCOIS FOUCART, Lawrence Berkeley National Laboratory , HARALD PFEIFFER, Canadian Institute for Theoretical Astrophysics, BELA SZILAGYI, California Institute of Technology, SIMULATING EXTREME SPACETIMES COLLABORATION — Binary black hole systems have now been successfully modelled in full numerical relativity by many groups. In order to explore high-mass-ratio (larger than 1:10), high-spin systems (above 0.9 of the maximal BH spin), we revisit the initial-data problem for binary black holes. The initial-data solver in the Spectral Einstein Code (SpEC) was not able to solve for such initial data reliably and robustly. I will present recent improvements to this solver, among them adaptive mesh refinement and control of motion of the center of mass of the binary, and will discuss the much larger region of parameter space this code can now address.

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