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**Evolution of Excised BHBH and BHNS Initial Data: Numerical Methods and Tests** ZACHARIAH ETIENNE, JOSHUA FABER, YUK TUNG LIU, STUART SHAPIRO, KEISUKE TANIGUCHI, University of Illinois at Urbana-Champaign, THOMAS BAUMGARTE, Bowdoin College — We are now able to perform fully general relativistic simulations of black hole-black hole (BHBH) and black hole-neutron star (BHNS) binaries using conformal thin-sandwich (CTS) initial data and the BSSN-based moving puncture evolution technique. We fill the excised BH regions in the CTS initial data with smooth, constraint-violating “junk” data. To test this technique, we apply the junk-filling procedure to excised irrotational CTS BHBH initial data and evolve it. We compare the resulting waveform to that found using *puncture* initial data with the same initial orbital frequency and find good agreement. In our most recent work, this junk-filling technique is employed to stably evolve excised CTS BHNS binary initial data through inspiral, merger, and ringdown ( $t > 200M$ ). We present results from our BHNS simulations that validate our numerical technique and briefly outline future plans.

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