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**Comparing Methods for Determining Quasi-Circular Orbits in Binary Black-Hole Initial Data** MIRANDA H. DETTWYLER, MARK HANNAM, CARLOS O. LOUSTO, Dept. of Physics and Astronomy, and Center for Gravitational Wave Astronomy, The University of Texas at Brownsville — We locate quasi-circular orbits and the innermost stable circular orbit (ISCO) for binary black hole systems of equal mass using the effective-potential and mass-comparison methods applied to Bowen-York puncture initial data. We compare the accuracy and precision of the results of these two methods and find that near the ISCO the two methods disagree within uncertainty. We are currently investigating which method gives the most physically accurate results.

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