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Neutron Star Binary Coalescences: How realistic is the initial data? RANDY WOLFMEYER, JIAN TAO, WAI-MO SUEN, HUI-MIN ZHANG, Washington University in St. Louis — Quasi-equilibrium approximations are often used as initial data for numerical simulations of binary neutron star inspiral coalescence. The standard is to begin the simulations at a separation close to that of the inner-most-stable-circular orbit. We examine how realistic it is to use quasi-equilibrium approximations at such close separations. Several measures of the validity are developed to determine what initial separation one must have for the quasi-equilibrium approximations to yield astrophysically realistic initial data.

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