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Eccentric Inspirals with Self-Force and Spin-Force[1] CHARLES EVANS, University of North Carolina-Chapel Hill, THOMAS OSBURN, Oxford College of Emory University, NIELS WARBURTON, University College Dublin — Eccentric inspirals of a small mass about a more massive Schwarzschild black hole (EMRIs or IMRIs) are calculated using the gravitational self-force and the Mathisson-Papapetrou spin-force. These calculations include all dissipative and conservative effects that are first order in the mass ratio. We compute systems with initial eccentricities as high as e = 0.8, initial separations as large as 50 M, and arbitrary spin orientations. Including the spin-force causes the orbital plane to precess. Inspirals are calculated using an osculating-orbits scheme that is driven by self-force data from a hybrid self-force code and time-domain spin-force calculations. The hybrid approach uses both self-force data from a Lorenz gauge code and highly accurate flux data from a Regge-Wheeler-Zerilli code, allowing the hybrid model to track orbital phase of inspirals to within 0.1 radians or better over hundreds or thousands of orbits.

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