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Self-forced motion of a scalar particle around a Schwarzschild black hole IAN VEGA, University of Guelph, PETER DIENER, Louisiana State University, BARRY WARDELL, University College Dublin, STEVEN DETWEILER, University of Florida — Motivated by the prospect of detecting low-frequency gravitational waves from the inspirals of compact objects onto massive black holes, much effort has gone into computing backreacting self-forces and investigating their effects on the motion of a point mass in black hole spacetimes. However, none of the work done to date has been able to look at what happens when you evolve the field and particle self-consistently. With newly-developed code, we have been able to accomplish just this, for the case of a scalar charge. In this talk we present the self-consistent motion of a scalar charge in the vicinity of a Schwarzschild black hole. These results are the first of its kind in the self-force community.

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