On finding fields and self-force in a gauge appropriate to separable wave equations II TOBIAS KEIDL, JOHN FRIEDMAN, ALAN WISEMAN, University of Wisconsin–Milwaukee, EIRINI MESSARITAKI, California Institute of Technology, DONG HOON KIM, Albert Einstein Institute — Gravitational waves from the inspiral of a stellar-size black hole to a supermassive black hole can be accurately approximated by a point particle moving in a Kerr background. A procedure for finding the renormalized self-force from the Tuekolsky equation [1] has been outlined in the separate talk and paper [2]. A singular metric has been computed in THZ coordinates [3] [4] (locally inertial on a geodesic), and has a simple form. In this talk, we focus on carrying out the procedure using the lowest order piece of the singular metric in Schwarzschild coordinates. We compute a lowest order non-singular ψ_0 and analyze the non-singular metric that arises.

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Date submitted: 12 Jan 2007   Electronic form version 1.4