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Self force on a static scalar charge in Schwarzschild spacetime
SWAPNIL TRIPATHI, ALAN WISEMAN, TOBIAS KEIDL, JOHN FRIEDMAN,
University of Wisconsin - Milwaukee — The finite part of the self force on a static
scalar charge in a Schwarzschild spacetime vanishes [1]. It is recalculated here using
a mode-by-mode expansion of the Greens function. The Quinn-Wald axioms [2,3]
have been used to regularize the self force. The motivation for this calculation is to
develop techniques and formalism for use in calculations of the self forces (dissipative
and conservative) acting on charges and masses moving in black hole spacetimes.

References

[1] A.G. Wiseman, Phys. Rev. D61 (2000) 084014

[2] T.C. Quinn, Phys. Rev. D62 (2000) 064029

[3] T.C. Quinn, R.M. Wald Phys. Rev. D56 (1997) 3381

Swapnil Tripathi
University of Wisconsin - Milwaukee

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