

Abstract Submitted
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How to Compute the Motion of a Body SAMUEL GRALLA, University of Maryland — Previous work established a universal form for the equation of motion of bodies in theories of a metric and other tensor fields that have second-order field equations following from a covariant Lagrangian in four spacetime dimensions. Differences in the motion of the “same” body in two different theories are entirely accounted for by differences in the body’s effective mass and charges in those different theories. In previous work the process of computing the mass and charges for a particular body was left implicit. I now obtain explicit expressions for the mass and charges of a body as surface integrals of the body fields at infinity, where the integrand is constructed from the symplectic current for that theory. This allows the entire prescription for computing the motion of a body to be written down in a few lines, in a manner universal across bodies and theories.

Samuel Gralla
University of Maryland

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