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Post-Minkowski action for point-particles and a helically symmetric binary solution JOHN FRIEDMAN, University of Wisconsin-Milwaukee, KOJI URYU, SISSA, Trieste, Italy — A Fokker action and equations of motion are obtained for two point particles in a post-Minkowski framework, in which the field of each particle is given by the half-retarded + half-advanced solution to the linearized Einstein equations. Expressions for the conserved four-momentum and the angular momentum tensor are obtained in terms of the particles' trajectories in this post-Minkowski approximation. A formal solution to the equations of motion is found for a binary system with circular orbits, the analog of a solution found independently by Schonberg and by Schild in the electromagnetic case. For a bound system of this kind, the post-Minkowski solution is a toy model that omits nonlinear terms of relevant post-Newtonian order; by adding to the action a post-Newtonian correction term, one obtains an innermost stable circular orbit.

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