EXACT MATHISSON–PAPAPETROU EQUATIONS IN THE SCHWARZSCHILD METRIC WITH INTEGRALS OF MOTION

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S u m m a r y

A new representation for exact Mathisson–Papapetrou equations under the Mathisson–Pirani condition in the Schwarzschild gravitational field, which does not contain third-order derivatives with respect to spinning-particle coordinates, has been obtained. For this purpose, the integrals of energy and angular momentum of a spinning particle, as well as a differential relation following from the Mathisson–Papapetrou equations for an arbitrary metric, are used. The form of the equations obtained is adapted for their computer integration and further researches dealing with the influence of the spin-curvature interaction on particle's behavior in the gravitational field imposing no restrictions on the particle's velocity and spin orientation.