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The variational principle for geodesic neighbourhoods.

Boundary value problems of mathematical physics, Collect. sci. Works, Kiev 1981, 79-81 (Russian) (1981).

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The author suggests a variational principle in parametric form for geodesic neighbourhoods. Thereby the Lagrangian is invariant with respect to a pseudo-euclidean group and depends on the first and the second derivative. The problem of the uniqueness of the Lagrangian is investigated. A substantial aid in these investigations is a sufficient and necessary criterion for the fact, that a system of differential equations of arbitrary order is a system of Euler-Poisson equations. Some applications of the results obtained to problems of the uniformly accelerated motion in the theory of relativity are shown.

K. Barckow.