

## The Modern Physics of Compact Stars and Relativistic Gravity

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### Canonical Solutions of Variational Problems and Canonical Equations of Mechanics

The canonical (non-parametric) solutions of the variational problems for integral functionals are considered and the canonical solutions of variational problems of mechanics in Minkowski spaces are derived. By combining the variational principles of least action, flow, and hyperflow canonically invariant equations for the energy–momentum variable are obtained. From these equations the equations for the action and wave functions as a general solution of the combined variational problems of mechanics are derived. These equations are applicable for describing different types of particles and interactions and are summarized within the approach of general relativity.

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