

Form Invariance and Noether Symmetries of Rotational Relativistic Birkhoff Systems

LUO Shao-Kai

Institute of Mathematical Mechanics and Mathematical Physics, Changsha University, Changsha 410003, China

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Abstract: Under the infinitesimal transformations of groups, a form invariance of rotational relativistic Birkhoff systems is studied and the definition and criteria are given. In view of the invariance of rotational relativistic Pfaff-Birkhoff-D'Alembert principle under the infinitesimal transformations of groups, the theory of Noether symmetries of rotational relativistic Birkhoff systems are constructed. The relation between the form invariance and the Noether symmetries is studied, and the conserved quantities of rotational relativistic Birkhoff systems are obtained.

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Key words: rotational relativity, Birkhoff system, form invariance, Noether symmetry, conserved quantity

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