

## Non-Noether Conserved Quantity of Poincaré-Chetaev Equations of a Generalized Classical Mechanics

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**Abstract:** In the present paper the Lie symmetrical non-Noether conserved quantity of the Poincaré-Chetaev equations of a generalized classical mechanics under the general infinitesimal transformations of Lie groups is discussed. First, we establish the determining equations of Lie symmetry of the equations. Second, the Lie symmetrical non-Noether conserved quantity of the equations is deduced. Finally, an example is given to illustrate the application of the results.

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**Key words:** Poincaré-Chetaev equations, generalized classical mechanics, Lie symmetry, non-Noether conserved quantity

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