

Lie Symmetrical Non-Noether Conserved Quantity of Mechanical System in Phase Space

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Abstract: We study the Lie symmetrical non-Noether conserved quantity of the differential equations of motion of mechanical system in phase space under the general infinitesimal transformations of groups. Firstly, we give the determining equations of the Lie symmetry of the system. Secondly, the non-Noether conserved quantity of the Lie symmetry is derived. Finally, an example is given to illustrate the application of the result.

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Key words: Lie symmetry, non-Noether conserved quantity, phase space

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