

Non-Noether Conserved Quantity of Nonholonomic System Having Variable Mass and Unilateral Constraints

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Abstract: Using the Lie Symmetry under infinitesimal transformations in which the time is not variable, the non-Noether conserved quantity of nonholonomic system having variable mass and unilateral constraints is studied. The differential equations of motion of the system are given. The determining equations of Lie symmetrical transformations of the system under infinitesimal transformations are constructed. The Hojman's conservation theorem of the system is established. Finally, we give an example to illustrate the application of the result.

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Key words: variable mass, unilateral constraint, nonholonomic system, non-Noether conserved quantity, determining equation

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