Integrating Factors and Conservation Theorems of Lagrangian Equations for Nonconservative Mechanical System in Generalized Classical Mechanics

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Abstract: The conservation theorems of the generalized Lagrangian equations for nonconservative mechanical system are studied by using method of integrating factors. Firstly, the differential equations of motion of system are given, and the definition of integrating factors is given. Next, the necessary conditions for the existence of the conserved quantity are studied in detail. Finally, the conservation theorem and its inverse for the system are established, and an example is given to illustrate the application of the result.

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