

Noether-Form Invariance of Nonholonomic Controllable Mechanical Systems in Phase Space

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Abstract: In this paper, we study the Noether-form invariance of nonholonomic mechanical controllable systems in phase space. Equations of motion of the controllable mechanical systems in phase space are presented. The definition and the criterion for this system are presented. A new conserved quantity and the Noether conserved quantity deduced from the Noether-form invariance are obtained. An example is given to illustrate the application of the results.

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Key words: nonholonomic controllable mechanical system, phase space, Noether-form invariance, conserved quantity

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