

## Integrating Factors and Conservation Theorems of Nonholonomic Dynamical System of Relative Motion

QIAO Yong-Fen,<sup>1</sup> ZHAO Shu-Hong,<sup>1</sup> and LI Ren-Jie<sup>2</sup>

<sup>1</sup> Engineering College of Northeast Agricultural University, Harbin 150030, China

<sup>2</sup> Faculty of Science, Laiyang Agricultural College, Laiyang 265200, China

(Received: 2006-2-23; Revised: 2006-5-26)

**Abstract:** The integrating factors and conservation theorems of nonholonomic dynamical system of relative motion are studied. First, the dynamical equations of relative motion of system are written. Next, the definition of integrating factors is given, and the necessary conditions for the existence of the conserved quantities are studied in detail. Then, the conservation theorem and its inverse of system are established. Finally, an example is given to illustrate the application of the result.

PACS: 03.20.+i, 03.50.Kk, 02.20.Sv

**Key words:** nonholonomic system, relative motion, integrating factor, conservation theorem

[\[Full text: PDF\]](#)

Close