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On the Numeric Integration of Dynamic Attitude Equations

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Abstract

We describe new types of numerical integration algorithms developed by the authors. The main aim of the algorithms is to numerically integrate differential equations which evolve on geometric objects, such as the rotation group. The algorithms provide iterates which lie on the prescribed geometric object, either exactly, or to some prescribed accuracy, independent of the order of the algorithm. This paper describes applications of these algorithms to the evolution of the attitude of a rigid body.

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