NASA-CR-194788

On the Numeric Integration of Dynamic Attitude Equations

P. E. Crouch, R. Grossman and Y. Yan

Center for Systems Science and Engineering
Arizona State University

Laboratory for Advanced Computing
University of Illinois at Chicago

February, 1992

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.

Status

Proceedings of the 31st IEEE Conference on Decision and Control, IEEE Press, 1992, to appear.