

M. Arnold, O. Brüls

Convergence of the generalized- α scheme for constrained mechanical systems. - Multibody System Dynamics 18:185–202. - 2007.

Abstract. A variant of the generalized- α scheme is proposed for constrained mechanical systems represented by index-3 DAEs. Based on the analogy with linear multistep methods, an elegant convergence analysis is developed for this algorithm. Second-order convergence is demonstrated both for the generalized coordinates and the Lagrange multipliers, and those theoretical results are illustrated by numerical tests.

Contact: martin.arnold@mathematik.uni-halle.de, o.bruls@ulg.ac.be