

Jukka Tuomela, Teijo Arponen, Villem Normi: *On the simulation of multibody systems with holonomic constraints*; Helsinki University of Technology, Institute of Mathematics, Research Reports A509 (2006).

Abstract: *We use Lagrangian formalism and jet spaces to derive a computational model to simulate multibody dynamics with holonomic constraints. Our approach avoids the traditional problems of drift-off and spurious oscillations. Hence even long simulations remain physically relevant. We illustrate our method with several numerical examples.*

AMS subject classifications: primary 65L80, 70E55 secondary 34A26, 65L05

Keywords: differential algebraic equations, multibody systems, Runge-Kutta methods, lagrangian mechanics

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