Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Mittwoch, 05.12.2012, 14:00 Uhr, Konrad-Zuse-Str. 3-5, Raum 2.030

Index Investigations in Discrete Mechanics and Optimal Control for Differential Algebraic Systems

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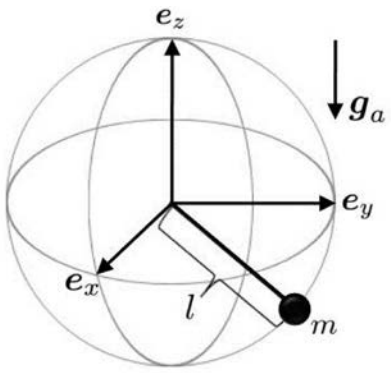
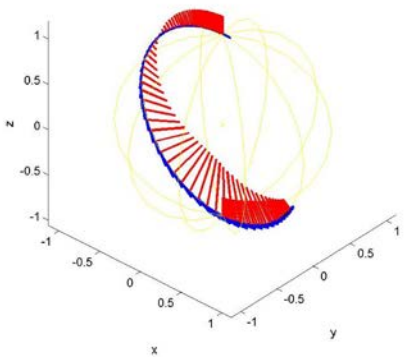
In this work, solutions of dynamical simulations based on Lagrangian formulations respectively differential algebraic systems of equations are investigated and compared each to another.
The underlying equations of motion are derived using the variational theory and constructed for the several index formulations. This means, the basic general equations are directly discretised and adapted to the application thereafter. Moreover, the calulations corresponding to the constraints on configuration, velocity and acceleration level are executed separately but with equal initial values. Afterwards, the results are evaluated directly, without any compensation steps which would correct deviations of the calculated to a realistic trajectory.
For this, the forward dynamical as well as the optimal control formulations are applied in the context of a simple mathematical pendulum as example and with different initial situations.





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