Elastic Multibody Systems with Frictional Contacts

By Jens Pfister

Shaker Verlag Dez 2006, 2006. Taschenbuch. Condition: Neu. Neuware - The computer aided design and analysis process of mechanical systems often requires the investigation of frictional contact problems. Generally, system components are elastic and deflect when they are subject to external or internal loads such as contact forces. These loadings may result in noise and vibrations like disc break squealing effects. To investigate the kinematics and dynamics of deformable mechanical systems, the traditional multibody system approach with its rigid body assumption has to be extended. Formalisms for elastic multibody systems, which incorporate flexible bodies into the mathematical modeling process, are thus required. This thesis presents a floating frame of reference formulation for flexible multibody systems based on a minimum set of generalized position and elastic coordinates. In this formulation the motion of a deformable body is composed of a reference motion and elastic deformations. To describe the displacement fields of deformable bodies, a finite element and a modal approach is applied. The finite element formulation is given for spatial Lagrangian elements with the nodal displacements as the only degrees of freedom. However, in the elastic multibody system method rotations due to deformations have to be taken into account. This thesis...

Reviews

This written publication is wonderful. It is rally fascinating throgh reading period. I discovered this book from my dad and i suggested this publication to find out.

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