IUTAM Symposium on Multiscale Problems in Multibody System Contacts [Proceedings of the IUTAM Symposium held in Stuttgart, Germany, February 20\201323, 2006 /

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Monografía

The investigation of multiscale problems in multibody system contacts is a most interesting and timely topic which has been the subject of intensive research for more than one decade. While many questions have been answered and the mechanically sound description and simulation is increasingly applied in practical engineering problems, this IUTAM Symposium facilitated discussions between researchers active in the field and enabled us to review the state-of-the-art and to identify for the years to come the hot topics which require further efforts. It was especially useful to bring together scientists from closely related but traditionally distinct fields such as multibody system contact, molecular dynamics, finite element contact, collision detection or the mathematics of unilateral contact. It is observed that the once clear boundaries between these fields are blurring and an exchange of ideas will accelerate the development with mutual benefits. Multiscale problems occur very naturally in contact mechanics. Typically the contact forces and stresses are very high and they are transmitted within a very short period of time. This leads to questions, e.g. how the slow rigid body motion and the fast motion changes can be considered simultaneously or how interface effects couple to wave propagation and the large-scale motion. The purpose of the symposium was be to provide a basis for discussion and exchange of new concepts and ideas to scientists from all over Europe and the world. This proceedings volume summarizes contributions of many authors active in the field and gives insight in very different areas of this fascinating research

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