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Dynamics of Multibody Systems

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Preface

According to a proposal made in 1974 by the Gesellschaft für Angewandte Mathematik und Mechanik (GAMM) the General Assembly of the International Union of Theoretical and Applied Mechanics (IUTAM) decided in 1975 to sponsor an international symposium on "Dynamics of Multibody Systems". A Scientific Committee has been appointed consisting of

J.D.C. Crisp, Australia, T.R. Kane, USA,
D.M. Klimov, USSR, A.D. De Pater, Netherlands,
K. Magnus, Germany (chairman).

This committee selected the participants to be invited and the papers to be presented at the symposium. As a result of this process 82 active scientific participants from 15 countries followed the invitation and 29 papers were presented. They are collected in this volume. At the symposium an additional presentation was delivered: Mrs. E. Gottzein introduced and explained a recently completed scientific movie on magnetic levitated vehicles.

The aim of the symposium was the exchange of ideas and the discussion of methods and results in the field of Multibody Dynamics. This has been achieved by a really efficient scientific and social program, organized for the six symposium days by a Local Organizing Committee. Members of this Committee were:

S. Ballout, M. Lippmann, P.C. Müller, W.O. Schiehlen, G. Schweitzer, E. Truckenbrodt, K. Magnus (chairman) and members of the staff of the Institute of Mechanics.

The scientific lectures were devoted to the following main topics:

Modeling, Formalisms, Robot Dynamics, Solution Techniques, Vehicle Dynamics, Large Systems, Spacecraft Dynamics, Gyrodynamics, Identification, Rotor Dynamics.

Since many of the lectures are related to more than one of these topics, the papers in this volume are arranged in alphabetical order. The lectures indicate in an impressive manner the wide scope of problems in the attractive field of modern dynamics, reaching from mathematics via physics to practical engineering applications. The presentations and discussions during the symposium will certainly stimulate further research and more results in this important field of modern mechanics. The publication of the proceedings may promote this development.

Generous financial and material support contributed to a successful symposium. The help of the following sponsors is therefore gratefully acknowledged:

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more thanks are due to the Springer Verlag for an agreeable and efficient cooperation.

Munich, December 1977

Kurt Magnus

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