



# Dynamics of Multibody Systems

*By Ahmed A. Shabana*

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## **Dynamics of Multibody Systems** By Ahmed A. Shabana

Dynamics of Multibody Systems, Third Edition, introduces multibody dynamics, with an emphasis on flexible body dynamics. Many common mechanisms such as automobiles, space structures, robots, and micromachines have mechanical and structural systems that consist of interconnected rigid and deformable components. The dynamics of these large-scale, multibody systems are highly nonlinear, presenting complex problems that in most cases can only be solved with computer-based techniques. The book begins with a review of the basic ideas of kinematics and the dynamics of rigid and deformable bodies before moving on to more advanced topics and computer implementation. This revised third edition now includes important new developments relating to the problem of large deformations and numerical algorithms as applied to flexible multibody systems. The book's wealth of examples and practical applications will be useful to graduate students, researchers, and practicing engineers working on a wide variety of flexible multibody systems.

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## **Dynamics of Multibody Systems** By Ahmed A. Shabana Bibliography

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## **Editorial Review**

### **Review**

'Professor Shabana has many excellent publications in the field of multibody systems and his third edition work is a standard reference on many mechanical engineering courses; it is a work that will enrich this field of study for years to come.' Measurement and Control

### **About the Author**

Ahmed Shabana was named the Richard and Loan Hill Professor in the Mechanical and Industrial Engineering Department at the University of Illinois at Chicago's College of Engineering. He received his Ph.D. from the University of Iowa in 1982 and worked as a postdoctoral Fellow there before joining UIC in Fall 1983. He is internationally known for his research contributions in the areas of large-scale computations as applied to dynamic and multibody systems such as vehicles, machines, and robots. Professor Shabana is the author of four books and has published more than 260 papers including 130 journal papers and 130 conference papers, presentations, and technical reports. He has maintained, over the years, a steady stream of research funding (a total of \$3.5 million) from the Federal Railroad Administration, Army Research Office and National Science Foundation, as well as other agencies and companies. In addition, Professor Shabana has supervised the work of 31 Ph.D. students, 30 MS students and 26 visiting scholars and postdoctoral Fellows. He has served on the editorial board of several journals, and he is the Founding Chair of the ASME Technical Committee on Multi-Body Systems and Nonlinear Dynamics. He has also served as a member of several national and international committees. He is a Fellow of the American Society of Mechanical Engineers (ASME). Professor Shabana received several awards, which include an Honorary Doctorate Degree from Lappeenranta University of Technology (Finland), the Fulbright Research Scholar Award, and the Humboldt Prize.

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