

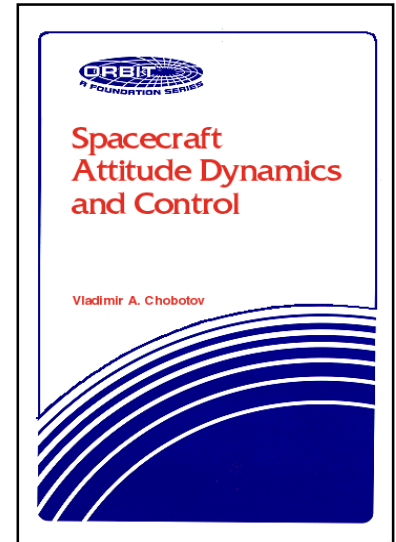
# SPACECRAFT ATTITUDE DYNAMICS AND CONTROL

by Vladimir A. Chobotov

Orig. Ed. 1991, Reprint Ed. 2008 161 pp. ISBN 978-0-89464-069-8 \$94.00

**Presented** here are the basic concepts, methods, and mathematical developments which are necessary to understand spacecraft attitude dynamics and control. This book is a comprehensive and self-contained treatment with emphasis on the practical aspects of the subject. It is a "road map" to the field of spacecraft dynamics and control, which contains all essential elements of kinematics, rigid body dynamics, linear control theory, environmental effects, and the theory of the stability of motion, all in a single volume. The book is based on the author's more than forty years of industrial and teaching experience and can be used as a textbook in aerospace engineering courses at either the senior or the first-year graduate school level.

*Spacecraft Attitude Dynamics*, 2008 Reprint with Corrections, Supplement and CD ROM augments the original material published in 1991 by correcting errors and presenting a Supplement that reviews recent trends in dynamics and control of small satellite systems and tethers in space. Also, included is a CD-ROM the objective of which is to provide view points and guidelines for solving selected problems in the text. Spinners and a menu are employed to enhance the learning experience by providing numerical results for ranges of input parameters to selected problems. Moreover, a faculty CD-ROM is also available that presents complete solutions to the problems of interest.



## About the Author

**Dr. Chobotov** served as a manager of the Space Hazards Section of the Aerospace Corporation until 1993 when he retired. Since then, he has been consulting and teaching at the Aerospace Corporation part time and lecturing at UCLA on orbital mechanics and related subjects. He is an author and co-author of several other books and of numerous journal publications. Professional associations include Associate Fellow of AIAA and member of the International Academy of Astronautics.

## Contents

Introduction	
Acknowledgements	
1. Kinematics and Dynamics of Angular Motion	
2. Spin Stabilization	
3. Dual-Spin Stabilization	
4. Three-Axis Active Control	
5. Momentum Exchange Systems	
6. The Environmental Effects	
7. Passive Gravity Gradient Stabilization	
8. Magnetic Stabilization Methods	
9. Stability of Motion	
<b>Appendix A. Problem Sets</b>	
Problem Set 1: Kinematics	
Problem Set 2: Dynamics	
Problem Set 3: Control Theory	
Problem Set 4: Gravity Gradient, Stability, and Magnetic Stabilization	
<b>Appendix B. Nomenclature</b>	
Index	
<b>SUPPLEMENT TO</b>	
<b>SPACECRAFT ATTITUDE DYNAMICS AND CONTROL</b>	
Preface	
Recent Trends in Dynamics and Control	
CD-ROM	



KRIEGER PUBLISHING COMPANY

1-800-724-0025

