

# Preface

This book is about finite element analysis of spacecraft structures. I tried to reflect the importance of numerical simulation not only in design stages but also in manufacturing simulation and testing. This book covers a wide range of applications using finite element method. This includes linear and nonlinear analysis, which makes this book very useful for many engineers in different areas and not only in spacecraft structures design.

This book is the outcome of my academic and industrial experience. After I got my Ph.D. degree in Aerospace Structures and did a post doc at West Virginia University in USA, I got the chance to work with YUZHNOYE Design Office in Ukraine through the Egyptian Space Program at NARSS; later I worked for Bluewater Energy in Netherlands, then a consultant for a number of aerospace and mechanical companies in UK, while working for the Virtual Engineering Centre, University of Liverpool, UK. Currently, I work as a Lecturer in Aerospace and Manufacturing, School of Aerospace and Mechanical Engineering, Queen's University in Belfast, Northern Ireland, UK. My research is in the area of Multiscale modeling and manufacturing simulation, in an effort to produce better products and reduce cost.

I would also like to thank my family, my father and Prof. Ever Barbero who always supported me.

I would like to express my gratitude to Allah and his prophets Moses, Jesus, and Muhammad, whose teachings have always guided me through all my life steps.

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Finite Element Analysis for Satellite Structures  
Applications to Their Design, Manufacture and Testing

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2013, X, 334 p., Hardcover

ISBN: 978-1-4471-4636-0