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ISSN 2195-4356 ISSN 2195-4364 (electronic)
Lecture Notes in Mechanical Engineering
ISBN 978-3-319-15683-5 ISBN 978-3-319-15684-2 (eBook)
DOI 10.1007/978-3-319-15684-2

Library of Congress Control Number: 2015932506

Springer Cham Heidelberg New York Dordrecht London
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Printed on acid-free paper

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(www.springer.com)

Preface

The "Modern Engineering: Science and Education" (MESE) conference was initially organized by the Mechanical Engineering Department of Saint Petersburg State Polytechnic University in June 2011 in St. Petersburg (Russia). It was envisioned as a forum in which to bring together scientists, university professors, graduate students, and mechanical engineers, presenting new science, technology, and engineering ideas and achievements.

The idea of holding such a forum proved to be highly relevant. Moreover, both location and timing of the conference were quite appealing. Late June is a wonderful and romantic season in St. Petersburg—one of the most beautiful cities, located on the Neva river banks, and surrounded by charming greenbelts. The conference attracted many participants, working in various fields of engineering: design, mechanics, materials, etc. The success of the conference inspired the organizers to turn the conference into an annual event.

The third conference, MESE 2013, attracted 150 presentations and covered topics ranging from mechanics of machines, materials engineering, structural strength, and tribological behavior to transport technologies, machinery quality and innovations, in addition to dynamics of machines, walking mechanisms, and computational methods. All presenters contributed greatly to the success of the conference. However, for the purposes of this book only 16 reports, authored by research groups representing various universities and institutes, were selected for inclusion.

I am particularly grateful to the authors for their contributions and all the participating experts for their valuable advice. Furthermore, I would like to thank the staff and management of the University for their cooperation and support, and especially, all members of the program committee and the organizing committee for their work in preparing and organizing the conference.