BOOK REVIEW

Micro and Nano-Scale Phenomena in Tribology

Reviewed by J. Paulo Davim, Department of Mechanical Engineering, Campus Santiago, University of Aveiro, Aveiro, Portugal

Micro- and Nanoscale Phenomena in Tribology
Yip-Wah Chung (Ed.)
© 2012 CRC Press
210 pp.
$157.95
ISBN: 978-1-4398-3922-5

Tribology is an important topic in science and engineering and is formally defined as the "*science and technology of interacting surfaces in relative motion and of related subjects and practices*". It includes the research and application of principles of friction, wear and lubrication. Recently, tribology on the small scale had been gaining importance in design and fabrication of components for modern engineering and biological systems. Historically, tribology is part of mechanical engineering. Today, researchers from physical and biological sciences, various disciplines of engineering and medicine are working on tribological aspects.

The present book, Micro- and nanoscale phenomena in tribology, explains research on tribology on the small scale with quality and innovation in 8 chapters. After the chapter 1, the introduction, the chapter 2 describes macroscale to microscale tribology. Chapter 3 presents an overview of fundamental continuum treatments of interfacial contact and lubrication. Chapter 4 describes surface energy and surface forces. Chapter 5 includes measurement and analysis of nanoscale friction. Subsequently, chapter 6 describes effects of micro- and nanoscale texturing on surface adhesion and friction. Chapter 7 presents environmental effects in tribology. Finally, chapter 8 describes molecular dynamics simulation of nanotribology.

This book can be used for final undergraduate engineering course (for example, mechanical, physical, materials, etc) or as a subject on tribology at the postgraduate level. Also, this book can serve as a useful reference for academics, researchers, mechanical, physical and materials engineers and others professionals in related nanosciences and nanotechnology.