1. Record Nr. UNINA9910459252403321 Autore Kudish Ilya I. Titolo Modeling and analytical methods in tribology / / authors, Ilya I. Kudish, Michael Judah Covitch Boca Raton:,: Taylor & Francis,, 2010 Pubbl/distr/stampa 0-429-14792-9 **ISBN** 1-4200-8702-9 Descrizione fisica 1 online resource (928 p.) Collana CRC series, modern mechanics and mathematics Altri autori (Persone) CovitchMichael Judah Disciplina 621.8/9 Soggetti Tribology - Mathematics Lubrication and lubricants - Mathematical models Friction - Mathemantical models Electronic books. Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali A CRC title. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Front cover; Contents; Preface; Chapter 1. Basics of Asymptotic Expansions and Methods; Chapter 2. Contact Problems for Coated and Rough Surfaces; Chapter 3. Contact Problems with Friction; Chapter 4. Rheology of Lubricating Oils; Chapter 5. Properties of Multi-grade Lubricating Oils; Chapter 6. Modeling of Lubricant Polymer Molecular Weight, Viscosity, and Degradation in Kurt Orbahn SHear Stability Test for Viscosity Improvers (VI) with Linear Structure; Chapter 7. Modeling of Lubricant Degradation in Kurt Orbahn Shear Stability Tests for Viscosity Improvers Based on Star Polymers Chapter 8. Analysis of SOme Experimental and Theoretical Data Related to Contact Fatique. Review of Select Contact Fatique ModelsChapter 9. Some Fracture Mechanics Problems Related to Contact Fatigue. Contact Fatigue Modeling for Smooth Elastic Surfaces; Chapter 10. Asymptotic and Numerical Analysis of Lightly and Heavily Loaded Fluid Lubricated Contacts of Elastic Solids; Chapter 11. Lubrication by Greases; Chapter 12. Elastohydrodynamic Lubrication by Formulated Lubricants That Undergo Stress-Induced Degradation; Chapter 13. Non-steady and

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Improving our understanding of friction, lubrication, and fatigue, ""Modeling and Analytical Methods in Tribology"" presents a fresh approach to tribology that links advances in applied mathematics with fundamental problems in tribology related to contact elasticity, fracture mechanics, and fluid film lubrication. The authors incorporate the classical tenets of tribology while providing new mathematical solutions that address various shortcomings in existing theories. From contact interactions to contact fatigue life, the book connects traditionally separate areas of tribology research to crea