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Titolo	Machining with Nanomaterials / / edited by Mark J. Jackson, Jonathan S. Morrell
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Descrizione fisica	1 online resource (384 p.)
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1. Fundamentals of Machining -- 2. Machining Stability -- 3. Machining Chatter Suppression -- 4. Micromachining from a Materials Perspective -- 5. Machining of Brittle Materials Using Nanostructured Diamond Tools -- 6. Analysis of Contact of Chip and Tool Using Nanostructured Coated Cutting Tools -- 7. Economic Analysis of Machining with Nanostructured Coatings -- 8. Analysis of Machining Hardened Steels Using Coated Cutting Tools -- 9. Modeling and Machining of Medical Materials -- 10. Manufacture and Development of Nanostructured Diamond Tools -- 11. Comparison of Original and Re-Coated Cutting Tools Machining Steel -- 12. Multi-objective Optimization of Cutting Conditions when Turning Aluminum Alloys (1350-O and 7075-T6 grades) Using a Genetic Algorithm -- 13. Nano grinding with Abrasives.
Sommario/riassunto	This book focuses on the state-of-the-art developments in machining with nanomaterials. Numerous in-depth case studies illustrate the practical use of nanomaterials in industry, including how thin film

nanostructures can be applied to solving machining problems and how coatings can improve tool life and reduce machining costs in an environmentally acceptable way. Chapters include discussions on, among other things: Comparisons of re-coated cutting tools and re-ground drills The modeling and machining of medical materials, particularly implants, for optimum biocompatibility including corrosion resistance, bio adhesiveness, and elasticity Recent developments in machining difficult-to-cut materials, as well as machining brittle materials using nanostructured diamond tools Spindle Speed Variation (SSV) for machining chatter suppression Nanogrinding with abrasives to produce micro- and nanofluidic devices. The importance of proper design of cutting tools, including milling tools, single point turning tools, and micro cutting tools is reinforced throughout the book. This is an ideal book for engineers in industry, practitioners, students, teachers, and researchers.