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| Nota di contenuto | ; 1. Introduction -- ; 2. The physical metallurgy of nickel and its alloys -- ; 3. Single-crystal superalloys for blade applications -- ; 4. Superalloys for turbine disc applications -- ; 5. Environmental degradation : the role of coatings -- ; 6. Summary and future trends. |
| Sommario/riassunto | Superalloys are unique high-temperature materials used in gas turbine engines, which display excellent resistance to mechanical and chemical degradation. This book presents the underlying metallurgical principles which have guided their development and practical aspects of component design and fabrication from an engineering standpoint. The topics of alloy design, process development, component engineering, lifetime estimation and materials behaviour are described, with emphasis on critical components such as turbine blading and discs. The first introductory text on this class of materials, it will provide a strong grounding for those studying physical metallurgy at the |

advanced level, as well as practising engineers. Included at the end of each chapter are exercises designed to test the reader's understanding of the underlying principles presented. Solutions for instructors and additional resources are available at www.cambridge.org/9780521859042.
