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| Nota di contenuto | General Introduction -- Characteristics of Laser-induced Plasma Shock Wave in Metal Materials -- Gradient Microstructure Characteristics and Formation Mechanism of Laser Shock Peening in Titanium Alloy -- Improvement of High Cycle Fatigue Performance in the Titanium Alloy by LSP-induced Gradient Microstructure -- Improvement of High Temperature Fatigue Performance in Nickel-based Alloy by LSP-induced Gradient Microstructure -- Mechanical Behavior and Strengthening Mechanism of LSP-induced Gradient Microstructure in Metal Materials -- Study on the Compound Process of Laser Shock Peening and the Strengthening Mechanism on the Aero-engine Blades. |
| Sommario/riassunto | This book introduces the fundamentals and principles of laser shock peening (LSP) for aeronautical materials. It focuses on the innovation in both theory and method related to LSP-induced gradient structures in titanium alloys and Ni-based alloys which have been commonly used in aircraft industries. The main contents of the book include: the characteristics of laser shock wave, the formation mechanism of gradient structures and the strengthening-toughening mechanism by gradient structures. The research has accumulated a large amount of experimental data, which has proven the significant effectiveness of LSP on the improvement of the fatigue performance of metal parts, and |

related findings have been successfully applied in aerospace field. This book could be used by the researchers who work in the field of LSP, mechanical strength, machine manufacturing and surface engineering, as well as who major in laser shock wave and materials science.
