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Titolo	Metallurgy in space : recent results from ISS / / edited by Hans-Jorg Fecht and Markus Mohr
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ISBN	3-030-89784-2
Descrizione fisica	1 online resource (564 pages) : illustrations (black and white, and color)
Collana	The Minerals, Metals & Materials Series.
Disciplina	669
Soggetti	Materials - Effect of space environment on Metallurgy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction --ESA Physical Science Research Programmatic --The EML Facility --Ground Support Program, Cycle planning and Operations -- Atomic Structure of metallic liquids --Thermophysical property measurements in the ISS-EML --Thermophysical Properties of Ni-based superalloys --Thermophysical Properties of Titanium Alloys -- Thermophysical Properties of Bulk metallic glasses --Magneto-Hydrodynamics simulations --Structural investigations on samples solidified in space --Relation between short range order and physical properties of liquids --Future perspectives - additive manufacturing in space --Future material developments --Thermophysical Properties of Steels --Levitation Research in Japan --Electrostatic Levitation on the ISS --Influence of Convection on Phase transformation in steel -- Theory of nucleation and glass formation.
Sommario/riassunto	This book presents experimental work conducted on the International Space Station (ISS) in order to characterize metals and alloys in the liquid state. The internationally recognized authors present and discuss experiments performed in microgravity that enabled the study of the relevant volume and surface related properties free of the restrictions of a gravity-based environment. The collection serves also as a handbook of space experiments using electromagnetic levitation techniques. A summary of recent results provides an overview of the

wealth of space experiment data, which will ignite further research activities and inspire academics and industrial research departments for their continuous development. The book: Summarizes the most exciting results of the physical property measurements in the ISS providing benchmark data; Demonstrates the entire chain of crucial developments from the atomic structure to related macroscopic properties; Illustrates international research and cooperation on board the ISS.