1. Record Nr. UNINA9910900179503321

Titolo	Handbook of Liquid Metals / / edited by Jing Liu, Wei Rao
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	9789819716142 9819716144
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (1353 pages)
Disciplina	530.41
Soggetti	Metals Thermodynamics Heat engineering Heat - Transmission Mass transfer Energy harvesting Metals and Alloys Engineering Thermodynamics, Heat and Mass Transfer Energy Harvesting
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Classical liquid metal -- Newly emerging liquid metal -- odification of liquid metal -- Material preparation and processing -- Nano liquid metal fabrication -- Engineering impact -- Surface tension of liquid metal -- Viscosity of Liquid Metal Flow -- Flow Dynamics of Liquid Metal -- Nano liquid metal fluidics -- Driving of liquid metal flow -- Microfluidics of liquid metal -- Thermal properties of liquid metal -- Phase change of liquid metal -- Thermal interface materials -- Analytical and computational heat transfer -- Advanced liquid metal cooling -- Liquid metal based heat recovery -- Oxidization of liquid metal -- Liquid Metal Catalysis.
Sommario/riassunto	This handbook systematically collects the latest scientific and technological knowledge on liquid metals obtained so far in this cutting edge frontier. Conventional materials such as metals, polymers, composites, ceramics and naturally derived matters, may not perform

well when facing certain technological challenges. At around room temperature, most of such materials mainly stay at solid state and are often difficult to shape due to their high melting point. Meanwhile, although classical soft matters own good flexibility, their electrical conductivities including more behaviours appear not good enough which generally limited their utilizations. As a game-changing alternative, the room temperature liquid metal materials are quickly emerging as a new generation functional material which displayed many unconventional properties superior to traditional materials. Their outstanding versatile feature as “One material, diverse capabilities” is rather unique among existing materials and thus opens many exciting opportunities for scientific, technological and industrial developments. This handbook presents comprehensive reference information on liquid metal science and technology that are currently available. The major advancements as made before are collected and summarized. Representative liquid metal applications are illustrated. It helps readers obtain a comprehensive understanding of the technical progresses and fundamental discoveries in the frontier, and thus better explore and utilize liquid metal materials to address various challenging needs.