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Eutectic Solidification Processing
Rapid Solidification Processing
Rapid Solidification Processing of High Temperature and Reactive Alloys
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Solidification Processsing 2007
Rapid Solidification Processing
Proceedings of the Merton C. Flemings Symposium on Solidification and Materials Processing
Rapid Solidification Processing: Principles and Technologies II.
Solidification Processing
Special Issue on Innovative Solidification Processing for Advanvced Materials
Solidification Processing of Metallic Alloys Under External Fields
The Mathematical Modeling of Rapid Solidification Processing
Eutectic Solidification Processing
Semi-solid Processing of Alloys
Seminar on Solidification Processing
Some Aspects on Solidification Processing and Interface Kinetics
Rapid Solidification Processing
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Solidification Processing under Microgravity
Solidification Processing of Reinforced Metals
Rapid Solidification Processing of Aluminum-rare Earth Alloys
Solidification Processing of Al-4.5%Cu/Al_2O_3 Composites
Solidification Processing

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Eutectic Solidification Processing Trans Tech Publications
Eutectic Solidification Processing: Crystalline and Glassy Alloys deals with solidification theory and its application to eutectic processing of crystalline and glassy alloys. The underlying theme is an analysis of the different paths taken by the liquid-solid transformation as the cooling rate increases and a description of the structure and properties of the solid formed, ranging from equilibrium to metastable phase formation in castings, to metallic glass formation in splat quenched ribbons. This text has seven chapters; the first of which describes the main characteristics of the liquid-so.
Rapid Solidification Processing Minerals, Metals, & Materials Society
Semisolid metallurgy (SSM) is now some 37-years-old in terms of time from its conception and ?rst reduction to practice in the laboratory. In the intervening years, there has been a steadily growing body of research on the subject and the beginning of signi?cant industrial applications. The overall ?eld of SSM comprises today a large number of speci?c process routes, almost all of which fall in the category of either “Rheocasting” or Thi- casting.” The former begins with liquid metal and involves agitation during partial solidi?cation followed by forming. The latter begins with solid metal of suitable structure and involves heating to the desired fraction solid and forming. Research over the past 37 years, and particularly over the last decade, has provided a detailed picture of process fundamentals and led to a wide range of speci?c SSM processes and process innovations. Industrial studies and actual p- duction experience are providing a growing picture of the process advantages and limitations. At this time, the conditions for eventual wide adoption of SSM appear favorable, both for nonferrous and ferrous alloys. It must, however, be recognized that major innovations, such as SSM become adopted only slowly by industries where capital costsarehigh,pro?tmarginsaremodest,andfailuretomeetcustomercommitments carries a high penalty.
Rapid Solidification Processing of High Temperature and Reactive Alloys Springer
Much of the success of composites can be attributed to the development of innovative processes. Many useful composites are envisaged by materials scientists but the problem of how to make them is often the greater hurdle.
Rapid Solidification Processing Springer Science & Business Media
This text comprises a collection of papers from the Merton C. Flemings Symposium held on the MIT campus in June, 2000. The papers cover such topics as dendritic solidification dynamics, control of casting quality, interdendritic fluid flow, semi-solid processing, and engineering education.
Rapid Solidification Processing Elsevier
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the structure and properties of the solid formed, ranging from equilibrium to metastable phase formation in castings, to metallic glass formation in splat quenched ribbons. This text has seven chapters; the first of which describes the main characteristics of the liquid-solid transformation. The chapters that follow show how control over composition, trace impurities, heat flow and cooling rate, and nucleation and growth gives rise to a wide range of solidification structures. Models of the nucleation and growth of eutectic and primary phases are analyzed and used to explain how cast microstructures are formed. Aluminum casting alloys and all types of cast iron are discussed, along with primary phase formation, the dependence of the extent of segregation on solidification conditions, and the practice of segregation prevention during solidification. This book also describes the importance of fluid flow in producing macroscopic segregation in large ingots and considers ways of minimizing this defect. Finally, this book gives a brief account of the various types of metallic glasses, their fabrication, important properties, and potential applications. This book will be of interest to materials scientists and industrial materials engineers.

Solidification Processsing 2007 McGraw-Hill Companies

This book explores the application of external physical fields to the solidification processing of metallic alloys. Leading academics from around the world present comprehensive and critical reviews on state-of-the-art research and discuss possible future directions. Major physical fields, including electromagnetic, electric, acoustic, and thermal, are considered. In addition, the most advanced synchrotron X-ray based real-time and in-situ studies and numerical modeling methodologies are reviewed and discussed, with a special emphasis on their applications to the solidification processes. Throughout, all chapters are illustrated with both historical and very recent research cases, including typical examples of in-situ studies, modeling, and simulation. This book contains essential knowledge and information suitable for a wide audience, from undergraduate and postgraduate students to academics, practicing researchers, and engineers in materials, metallurgy, and manufacturing.

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