DISCUSSION PUBLISHERS
Research Center · Open Access Edition

Mathematical modelling of solidification and melting: a review

Henry S. -W. Hu, Stavros A. Argyropoulos

Discussion Research ID	DPR-2026-1404
Year	1996
Field	Materials Science
DOI	10.1088/0965-0393/4/4/004
Author ORCID	0000-0001-7761-7453
Licence	PUBLIC-DOMAIN
Original source	Modelling and Simulation in Materials Science and Engineering
Permanent link	https://discussionpublishers.com/research/9edd90d0-697a-48b8-891e-4182ff7c7bbd
Publisher	Discussion Publishers discussionpublishers.com

Republished by Discussion Publishers under the original PUBLIC-DOMAIN licence. Copyright remains with the original authors; please cite the original work.

Cite as: Henry S. -W. Hu, Stavros A. Argyropoulos (1996). Mathematical modelling of solidification and melti. Discussion Publisher

Abstract

The major methods of mathematical modelling of solidification and melting problems are reviewed in this paper. Different analytical methods, nowadays still used as standard references to validate numerical models, are presented. Various mathematical formulations to numerically solve solidification and melting problems are categorized. Relative merits and disadvantages of each formulation are analysed. Recent advances in modelling solidification and melting problems associated with convective motion of liquid phase are discussed. Based on this comprehensive survey, basic guidelines are outlined to choose a correct mathematical formulation for solving solidification and melting problems.

Keywords: solidification, melting, mathematical modeling, analytical solution, numerical formulation, convecti

Full text

The complete text of this work is hosted by its original publisher.
Read it via the Discussion Publishers page:
https://discussionpublishers.com/research/9edd90d0-697a-48b8-891e-4182ff7c7bbd

Original record: https://doi.org/10.1088/0965-0393/4/4/004
DOI: https://doi.org/10.1088/0965-0393/4/4/004