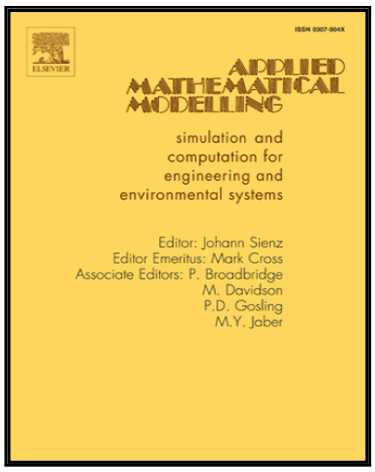
Accepted Manuscript



An asymptotic approach to solidification shrinkage-induced macrosegregation in the continuous casting of binary alloys

M. Vynnycky, S. Saleem, H. Fredriksson

PII: S0307-904X(17)30629-7
DOI: 10.1016/j.apm.2017.10.012
Reference: APM 12013

To appear in: *Applied Mathematical Modelling*

Received date: 16 June 2017
Revised date: 26 September 2017
Accepted date: 10 October 2017

Please cite this article as: M. Vynnycky, S. Saleem, H. Fredriksson, An asymptotic approach to solidification shrinkage-induced macrosegregation in the continuous casting of binary alloys, *Applied Mathematical Modelling* (2017), doi: 10.1016/j.apm.2017.10.012

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

Highlights

- Asymptotic analysis for continuous casting of a binary alloy using regular perturbation theory
- Micro-scale assumption for lever rule solidification feeds through to the leading order in the macroscale solution
- Boundary immobilization technique for determining the extent of the mushy zone and the level of macrosegregation
- Method implemented in Comsol Multiphysics

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/8052131

Download Persian Version:

https://daneshyari.com/article/8052131

Daneshyari.com