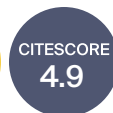




*metals*



*Special Issue Reprint*

## Physical Metallurgy of High Manganese Steels

[www.mdpi.com/books/reprint/1879](http://www.mdpi.com/books/reprint/1879)

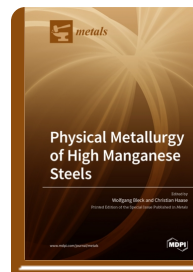
Edited by

Wolfgang Bleck

Christian Haase

ISBN 978-3-03921-856-1 (Softback)

ISBN 978-3-03921-857-8 (PDF)



The Special Issue ‘Physical Metallurgy of High Manganese Steels’ addresses the highly fascinating class of manganese-alloyed steels with manganese contents well above 3 mass%. The book gathers manuscripts from internationally recognized researchers with stimulating new ideas and original results. It consists of fifteen original research papers. Seven contributions focus on steels with manganese contents above 12 mass%. These contributions cover fundamental aspects of process-microstructure-properties relationships with processes ranging from cold and warm rolling over deep rolling to heat treatment. Novel findings regarding the fatigue and fracture behavior, deformation mechanisms, and computer-aided design are presented. Additionally, the Special Issue also reflects the current trend of reduced Mn content (3-12 mass%) in advanced high strength steels (AHSS). Eight contributions were dedicated to these alloys, which are often referred to as 3rd generation AHSS, medium manganese steels or quenching and partitioning (Q&P/Q+P) steels. The interplay between advanced processing, mainly novel annealing variants, and microstructure evolution has been addressed using computational and experimental approaches. A deeper understanding of strain-rate sensitivity, hydrogen embrittlement, phase transformations, and the consequences for the materials’ properties has been developed. Hence, the topics included are manifold, fundamental-science oriented and, at the same time, relevant to industrial application.



Order Your Print Copy

You can order print copies at

[www.mdpi.com/books/reprint/1879](http://www.mdpi.com/books/reprint/1879)

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



## Open Access

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



## Author Focus

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



## High Quality & Rapid Publication

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



## High Visibility

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



## Print on Demand and Multiple Formats

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.