



materials



Special Issue Reprint

Metalworking Processes: Theoretical and Experimental Study

www.mdpi.com/books/reprint/10608

Edited by

Konrad Laber

Janusz Tomczak

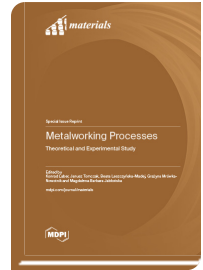
Beata Leszczyńska-Madej

Grażyna Mrówka-Nowotnik

Magdalena Barbara Jabłońska

ISBN 978-3-7258-3370-2 (Hardback)

ISBN 978-3-7258-3369-6 (PDF)



The modelling of structural and mechanical properties in metal thermomechanical treatment processes and technical alloys is a crucial research area, and it is currently at the center of interest of scientific centers dealing with materials engineering and plastic working processes. Performing direct tests under industrial conditions for the development of such processes is too costly and usually does not allow for the optimization of process parameters. Therefore, it is justified to develop methods of optimizing technological processes, ensuring the receipt of a product with the required mechanical properties based on modern methods of numerical and physical modelling. By using modern computer programs based on the finite element method, it is possible to carry out numerical simulations of technological processes. Computer simulation also enables the design and optimization of industrial processes without long-term and costly experiments in the technological line. Mathematical modelling also enables the determination of the parameters necessary for physical modelling by using metallurgical process simulators. However, numerical modelling alone does not allow for the accurate prediction of the mechanical properties and microstructure of the tested material. The use of the physical simulation methods is a supplement to mathematical modelling, which allows for solving

problems encountered in the development of new production processes with high



Order your print copies at

www.mdpi.com/books/reprint/10608

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.