



metals



Special Issue Reprint

Laser Shock Processing and Related Phenomena

www.mdpi.com/books/reprint/2816

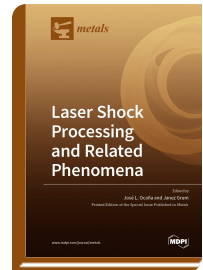
Edited by

José L. Ocaña

Janez Grum

ISBN 978-3-03936-798-6 (Hardback)

ISBN 978-3-03936-799-3 (PDF)



Laser shock processing (LSP) is a continuously developing effective technology used to improve surface and mechanical properties for metallic alloys. LSP is in direct competition with other established technologies, such as shot peening, both in preventive manufacturing treatments and maintenance/repair operations. The level of LSP maturity has increased in recent years and several thematic international conferences have been organized (i.e., the 7th ICLPRP held in Singapore, June 17–22, 2018) to discuss different developments of a number of key aspects. These aspects include: fundamental laser interaction phenomena; material behavior at high deformation rates/under intense shock waves; laser sources and experimental process implementation; induced microstructural/surface/stress effects; mechanical and surface properties with experimental characterization and testing; numerical process simulation; development and validation of applications; comparison of LSP to competing technologies; and novel related processes. All of these aspects have been recursively treated by well-renowned specialists, providing a firm basis for the further development of the technology in its path to industrial penetration. However, the application of LSP (and related technologies) on different types of materials with different applications (such as the always demanding aeronautical/aerospatial field or the energy generation, automotive, and biomedical fields) still requires extensive effort to elucidate and master different critical aspects. Thus, LSP deserves a great research effort as a necessary step prior to its industrial readiness level. The present Special Issue of *Metals* in the field of “Laser Shock Processing and Related Phenomena” aims, from its initial launching date, to collect (especially for the use of LSP application developers in different target sectors) a number of relevant papers representing state-of-the-art technology and its future prospects to realize its wide and relevant prospects as a key manufacturing technology. In an additional and complementary way, papers were presented at the thematic ICLPRP conferences, and a call was made to authors willing to prepare high-quality and relevant papers to the journal, with the confidence that their work would become part of



Order your print copy today!
You can order print copies at:
www.mdpi.com/books/reprint/2816

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.