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Enhanced Properties of Materials by Surface Peening and Modification Technologies

Guest Editor:

Dr. Auezhan Amanov
Department of Mechanical Engineering, Sunmoon University, Asan 31460, Republic of Korea

Deadline for manuscript submissions:
20 April 2025

Message from the Guest Editor

Surface peening and modification technologies are applied to various materials to improve the various properties in a wide range of applications via surface severe plastic deformation (S2PD) thanks to grain size refinement and induced compressive residual stress. In addition, they change the phase composition of materials, which is essential for improving their mechanical properties, wear resistance, corrosion resistance, fatigue endurance, etc. Hence, this SI elaborates on the recent innovations in S2PD-based technologies such as shot peening, laser peening, ultrasonic nanocrystal surface modification, ultrasonic surface rolling process, water jet peening, cavitation peening, etc. In particular, this SI focuses on assessing the impact of laser- and ultrasonic-based S2PD technologies on microstructural changes, mechanical properties, wear resistance, corrosion resistance, fatigue endurance, etc. Numerical analyses of surface peening and modification technologies will also be considered.

We invite researchers from all over the world to submit their original research papers or review articles. Moreover, this SI welcomes interesting research papers from the 8th ICLPRP.

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Editor-in-Chief

Prof. Dr. Maryam Tabrizian
1. Department of Biomedical Engineering, Faculty of Medicine and Health Sciences, McGill University, Montreal, QC H3A 2B6, Canada
2. Faculty of Dentistry and Oral Health Sciences, McGill University, 3640 Rue University, Montreal, QC H3A 0C7, Canada

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Contact Us

Materials Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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