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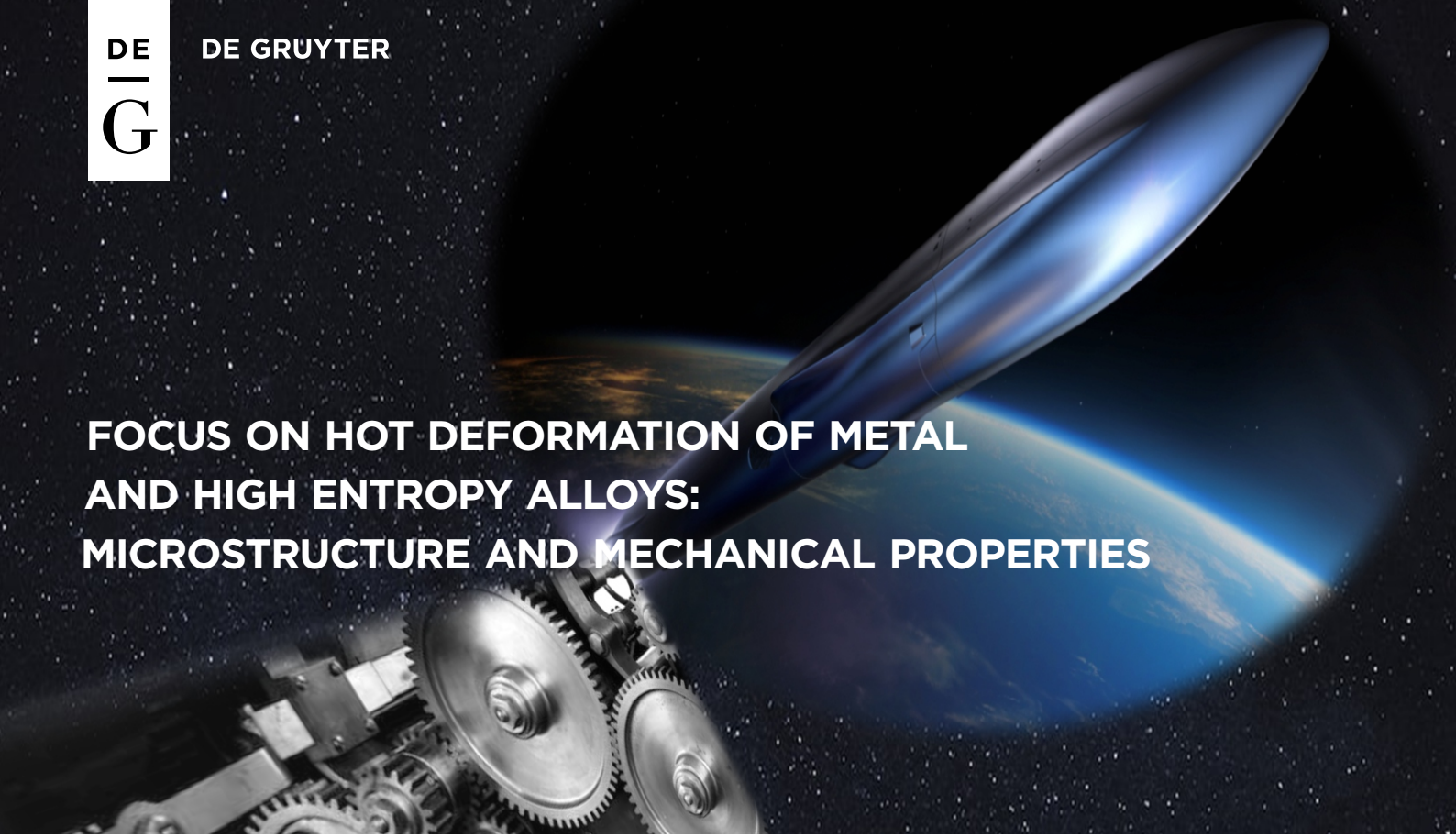

FOCUS ON HOT DEFORMATION OF METAL AND HIGH ENTROPY ALLOYS: MICROSTRUCTURE AND MECHANICAL PROPERTIES

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DESCRIPTION

Functional materials and high-entropy alloys (HEAs) are a novel class of advanced metallic materials that typically have outstanding mechanical characteristics and getting the attention of materials science engineers and researchers. A crucial step of shaping the structural metal is hot deformation, which is influenced by the deformation flow stress, deformation mechanism, dynamic softening mechanism, hot deformation damage, microstructural alteration and phase change. Hot deformation damage is a weakening type that needs to be prevented. The foundation for process optimization and high-temperature material forming is a thorough grasp of hot deformation.

This Special Issue focuses not only on standard or conventional technologies (e.g., compression, rolling or forging), but also on advanced procedures, such as the severe plastic deformation methods or various types of the complex thermomechanical processing. Incorporation of high entropy properties in the advanced materials such as shape memory alloy, piezoelectric metal, magnetostrictive metal, electrostrictive metal, dielectric metal, metallic biomaterial, Ultralight metal will be a novel direction in this special issue collection which will give a new direction for the high-end manufacturing industries. The contribution of researchers with their manuscript from the Globe will definitely enhance the learning and understanding of scientific community.

Original research papers and reviews are invited on theoretical modelling and experimental work related to following sub-themes of the focused issue, including but not limited to:

- Mechanical working: Compression, rolling or forging
- Microstructure and Phase evolution
- Processing map, Image quality map, Phase fraction map, Grain average misorientation map, SEM, XRD, TEM, GAM, Flow-stress curve analysis, Optical micrographs, EBSD inverse pole figure map, XRD pattern
- Deformation behaviours prediction and analysis
- Mechanical and tribological properties
- HEA-based Intelligent material and hot working
- Corrosion
- Fatigue
- Dislocation slips and twinning
- Meta-model development using experimental results
- Machining of Novel Materials
- Joining of Similar or Dissimilar Materials
- Implementation of AI and Optimisation on various metal working or manufacturing process

This focus issue gathered research information on microstructure and mechanical properties of Functionally graded HEAs for the desired application. Original research papers and reviews are invited on theoretical modelling and experimental work related to following sub-themes of the Hot Deformation of Metal and High Entropy Alloys, including but not limited to: Mechanical working such as compression, rolling or forging; Microstructure and Phase evolution; Processing map, Image quality map, Phase fraction map; Grain average misorientation map; SEM, XRD, TEM, GAM, Flow-stress curve analysis, Optical micrographs, EBSD inverse pole figure map, XRD pattern; Deformation behaviours prediction and analysis; Mechanical properties; HEA-based Intelligent material and hot working; Corrosion; Wear; Fatigue; Dislocation slips and twinning; Grain boundary segregation; Precipitation and phase transformation; Low-temperature/high-temperature deformation; Methods for strengthening and toughening of functional materials and high-entropy alloys under various conditions; Meta-model development using experimental results.

HOW TO SUBMIT

Before submission authors should carefully read the **Instruction for Authors**:
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All submissions to the Topical Issue must be made electronically via the **Editorial Manager** submission and tracking review system: https://www.editorialmanager.com/htmp/default.aspx

The deadline for submissions is **October 30, 2023,** but individual papers will be reviewed and published online on an ongoing basis.

We are looking forward to your submission !!!

In case of any questions please contact **Ms. Joanna Kosińska**, Managing Editor of High Temperature Materials and Processes, Joanna.Kosinska@degruyter.com