# Special Issue

# New Processes and Technologies in Alloy Materials: Focus on Additive Manufacturing, HEAs, and Welding

## Message from the Guest Editors

This Special Issue focuses on three key areas: additive manufacturing (AM), high-entropy alloys (HEAs), and welding technologies. AM offers exceptional design freedom and material efficiency, yet challenges remain in process optimization, defect mitigation, and property consistency. HEAs, known for their complex chemistries and outstanding mechanical properties, are being explored for high-temperature stability and corrosion resistance. Welding technologies are advancing via friction stir welding, hybrid techniques, and laser-based methods to improve the joining of dissimilar or hard-to-weld alloys. Recent studies have sought highlight microstructure–property relationships, in situ monitoring, phase transformation behavior, and the integration of AM with tailored heat treatments. In addition, machine learning-driven alloy design and process control are accelerating the discovery of new alloys and optimizing processing routes.

## Guest Editors

Dr. Waris Nawaz Khan

Department of Mechanical Engineering, Polytechnique Montreal, University de Montreal, Montreal, QC H3T 0A3, Canada

Dr. Nitin Saini

Chemicals and Materials Engineering Department, University of Alberta, Edmonton, QC T6G 1H9, Canada

## Deadline for manuscript submissions

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*Materials*
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
materials@mdpi.com

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### Message from the Editor-in-Chief

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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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