

Functional materials and metallurgy: Recent advances and innovations

Preface

Welcome to the Special Issue of Advances in Material Research (AMR) devoted to highlighting the most recent advances and research breakthroughs in the fields of functional materials and metallurgy, with a particular emphasis on the outcomes of modelling and simulation methodologies. This Special Issue provides a forum for researchers to investigate the broad and quickly growing topic of functional materials and metallurgy while emphasising the significant contributions of modelling and simulation to our understanding and development of these materials. This special issue brings together researchers and experts from diverse disciplines to present their findings, share insights, and foster collaborations in the realm of materials research.

Functional materials are a diverse class of materials with distinct properties and functions that enable transformational applications in a variety of industries. Functional materials have revolutionised a wide range of industries, from sophisticated electronics and energy storage to sensing, catalysis, and biological applications. This special issue brings together researchers and specialists from academia, industry, and research institutes to discuss their most recent results, thoughts, and viewpoints, providing a thorough overview of the accomplishments and challenges in this dynamic subject.

A section of this Special Issue is also devoted to metallurgy, with a focus on the synthesis, processing, and characterization of metallic materials. Metallurgical research is essential for improving the performance, dependability, and sustainability of metallic materials. This area contains articles on cutting-edge research in alloy design, microstructural engineering, mechanical characteristics, corrosion resistance, and additive manufacturing. These presentations shed light on the most recent advances in metallurgy, demonstrating the value of modelling and simulation in directing metallic material development and optimisation.

We would like to express our heartfelt appreciation to the authors who contributed their research to this Special Issue, as well as the reviewers who gave their time and skills to assure the quality and rigour of the published pieces. Hoping that the manuscripts published in the present special issue will be of interest to the readers of AMR, I would like to express their sincere appreciation and thanks to all committee members of the ICoFChem2023.

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