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Preparation and Characterization of Nanocomposite Coatings of Materials

Guest Editor:

Dr. Shuaijun Pan

Department of Chemical
Engineering, University of
Melbourne, Parkville 3010,
Australia

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Message from the Guest Editor

The main purpose of coatings is surface reinforcement, from mechanical, chemical, performance aspects. For structural materials, anticorrosive coating is usually required while maintaining mechanical performance. For surface engineering of small objects such as NPs, interfacial selectivity is usually targeted via nanocomposite coatings.

The development of advanced coatings requires in-depth understandings of the interplay between microstructures and macroscopic properties, including long-term performance when subjected to relevant surrounding environments. The terminal applications of nanocomposite coatings exist in diverse fields, such as advanced manufacturing, chemical engineering, nanomedicine, catalysis, energy conversions, oil-water separations and self-cleaning.

This SI will cover various interesting topics in nanocomposite coatings and its interdisciplinary fields, such as preparation strategies and pathways, understanding of interfacial adhesion and cohesion mechanisms, systematic characterization techniques, interplay of individual components within the coating composite, instrumental techniques, molecular dynamics, perspectives and accurate tuning of surface properties.



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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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Materials Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

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