

Topical Collection

Low-Dimensional Materials for Film-Based Opto-Electronic Devices

Message from the Collection Editors

Low-dimensional materials have emerged as key building blocks for next-generation opto-electronic devices due to their unique tunable properties, quantum confinement effects, and high surface-to-volume ratios. Coating technologies—including core/shell engineering, ligand exchange, encapsulation, and thin-film deposition—play a pivotal role in tuning interfacial properties, enhancing photostability, suppressing defect states, and enabling device-level integration. This Topical Collection aims to gather original research and critical reviews at the intersection of low-dimensional materials and advanced coating technologies. This Topical Collection offers a timely and comprehensive platform to highlight the convergence of materials science and surface/interface engineering through coating technologies.

- Synthesis and functionalization of low-dimensional materials:
- Film fabrication strategies for low-dimensional materials:
- Structural, optical, and electronic characterization:
- Device integration and architecture optimization:

Collection Editors

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About the Journal

Message from the Editorial Board

Now more than ever, research is asked to deliver knowledge and technologies to solve the major challenges faced by our society. The development of new materials and devices for (without the ambition to be exhaustive) energy, health and food technology, together with the need for establishing processes that reduce the impact on critical resources and the environment, is indeed in the spotlight of most contemporary research. Surface science and engineering play a key role in this regard, with an incredible potential in delivering new and deep scientific understanding and technical solutions essential to solve most of the major societal challenges.

Coatings is a well-established, peerreviewed, online journal dedicated to the vibrant field of surface science and engineering. Coatings publishes original research articles that report cutting-edge results and review papers that make the point on the hottest research topics.

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