Special Issue

Towards Next-Gen Superconductors: Thin Film Design, Interface Control, and Integration

Message from the Guest Editors

This Special Issue aims to highlight cutting-edge research on the design, characterization, and application of superconducting thin films, with a particular focus on material interfaces in complex systems. We welcome contributions that explore innovative approaches in thin film fabrication, including epitaxial growth, interface engineering, functionalization, interface engineering, and novel deposition techniques. We particularly seek studies that address the interplay between the structure, composition, and properties of superconducting thin films and the challenges in attaining high critical current densities and an excellent internal quality factor. This Special Issue also aims to showcase interdisciplinary advances that integrate superconducting thin films with semiconductors, magnetic materials, or dielectrics, establishing hybrid devices for applications in quantum computing, cryogenic memory, RF filters, and medical imaging technologies.

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