Engineering Mesoscale Architectures in Superconductors via Block Copolymer Self-Assembly


Block Copolymer Self-Assembly & Structure Direction

Self-organizing macromolecules can structure direct inorganic materials. Block copolymers define periodic architectures on the mesoscale.

Mesoscale effects are common in superconductivity: flux pinning, coherence lengths, etc. Soft matter & solution-processibility bring technological advantages to quantum materials.

Gyroidal Niobium Nitride Superconductors

Niobium Carbonitride Quantum Metamaterials


High-Pressure Templating of Superconducting Metal

Hierarchically Porous Titanium Nitride Superconductors


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