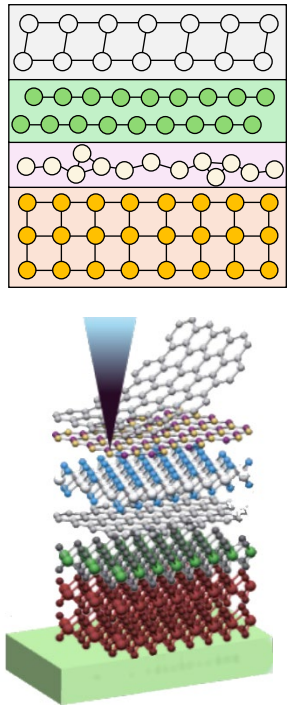
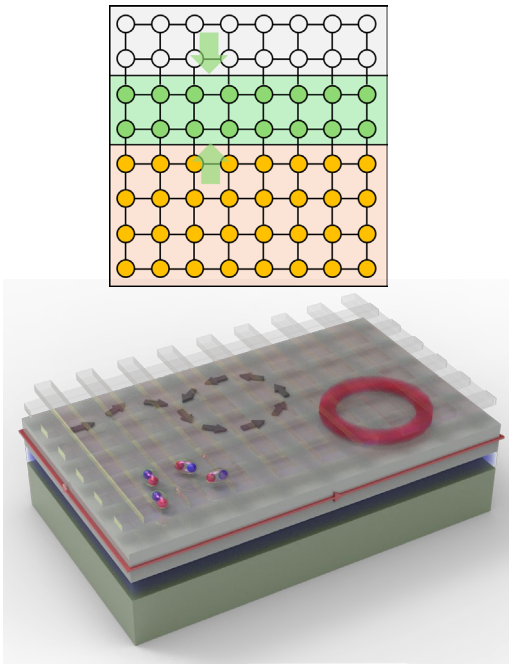
High-Quality Materials for Next Hundred Years

Epitaxy of incommensurate materials for microelectronics



Epitaxy of quantum materials



Unconventional superconductivity
Chirality, Spin transport, Non-Abelian Anyon, etc..

Scientific Achievement

A summary of conventional and unconventional epitaxy techniques and research relevant to national initiatives, such as microelectronics and quantum.

Significance and Impact

Preparation of high-quality materials and their heterostructures opened the current landscape of microelectronics and quantum technologies. Co-design of epitaxy is essential to realize ideas and insights from semiconductors and quantum materials fields.

Research Details

- Recent progress in epitaxy techniques overcoming materials compatibility issues.
- Research topics for realization of proposed quantum and information systems.

Work was performed, in part, at the Center for Integrated Nanotechnologies.

Lee, Y.; Choi, S. H.; Kim, H.; Yoo, J. Epitaxy of Emerging Materials and Advanced Heterostructures for Microelectronics and Quantum Sciences. *Small Methods* 2025.