

Invited

**Present Status and Future Prospects of Quantum Structure Materials
and Devices**

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Material science and fabrication technology of quantum structure materials have been advanced step by step every year. They have recently reached a stage where several new material systems and new quantum structures with nm-scale lateral definitions can be reproducibly prepared. We review briefly these developments and discuss their possible impacts on both conventional and novel semiconductor devices. We examine, in particular, a few epitaxial methods to prepare nm-scale quantum wires and boxes and clarify both advantages and drawbacks of each approach.

