Advanced Lecture on Quantum Nanostructure Semiconductors

2 units (selection)

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Target〉 This lecture aims at understanding basic concepts of the quantum effects of semiconductor nanostructures based on materials science and various technologies for device applications.

Outline〉 This lecture introduces characteristics of quantum structures and technologies of the device applications, based on quantum mechanics, semiconductor physics, materials science and photonics. Advanced technologies of fabrication and measurements and recent topics of the research are also introduced.

Style〉 Lecture

Goal〉 To understand materials science and application technologies of nano structure semiconductors

Schedule〉

1. Electronic states in semiconductor quantum structures
2. Electronic properties of quantum stutures
3. Optical properties of quantum stutures
4. Fabrication technologies of semiconductor nanostructures
5. Evaluation technologies of crystals
6. Evaluation technologies of nanostructures
7. Analysis of elctronic properties
8. Analysis of optical properties
9. Quantum effect devices
10. Nonlinear optical responces of semiconductors
11. Responces of optical micro cavity
12. Research progress in quantum nanostructure semiconductors
13. Ultrafast optical devices
14. Quantum information devices
15. Topics of recent advanced research (1)
16. Topics of recent advanced research (2)

Evaluation Criteria〉 Assignments

Textbook〉 None

Reference〉 To be introduced in the class

Contents〉 http://cms.db.tokushima-u.ac.jp/cgi-bin/toURL?EID=216907

Contact〉

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