

Curriculum Vitae

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Electronics,
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Education & Research Experience

2009.10-present Postdoctoral fellow, Institute for Nano Quantum Information
Electronics, The University of Tokyo, Tokyo, Japan
MOCVD Growth and Optical Properties of III-nitrides nanostructures (QDs, QWRs)
Advisor: Prof. Yasuhiko Arakawa

2004.09-2009.07 Ph.D. in Condensed Mater Physics, School of Physics, Peking
University, Beijing, China.
Dissertation title: MOCVD Growth and Characterization of GaN based Diluted
Magnetic Semiconductor Materials and Devices,
Advisor: Prof. Guoyi Zhang

2000.09-2004.07 B.Sc. in Physics, Jilin University, Changchun, China
Dissertation title: Electronic Transport through a One-dimensional Quantum Dot
Array,
Advisor: Prof. Yisong Zheng

Title of the talk:

GaN based Diluted Magnetic Semiconductors and Quantum Nanostructures: Growth
and Properties

Abstract

In this talk, I will first focus on the growth and characterization of GaN based diluted
magnetic semiconductors including the structural, optical and magnetic properties. In
particular, we try to understand the origins of room temperature ferromagnetism in
Mn doped GaN films. We conclude that the ferromagnetic properties are not only

dependent on Mn concentration, but also correlated with the donor-like defects. A charge transfer model was proposed to interpret the results. Then, I will move to the quantum nanostructures of III-nitrides, including quantum dots and quantum wires. I will discuss the fabrication and optical properties of the self-assembled and site-controlled InGaN/GaN quantum dots and GaN/AlGaN quantum wires. The strong photoluminescence emission observed at room temperature as well as the reduction of quantum confinement Stark effect opens the possibility of using such systems as efficient single photon sources.

Research Interest

- III-Nitride optoelectronic materials and devices
- Nano-optoelectronic materials, quantum dots/nanowires
- Semiconductor spintronics materials for spin-FET, spin-LED