

# CNSI-RIEC Workshop on Nanoelectronics, Spintronics and Phototronics

Organized by  
The California NanoSystems Institute at  
University of California, Santa Barbara  
And  
The Research Institute of Electrical Communication,  
Tohoku University

October 9<sup>th</sup> and 10<sup>th</sup>, 2008  
University of California at Santa Barbara  
1601 Elings Hall, California NanoSystems Institute (CNSI)

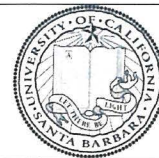


**TOHOKU**  
UNIVERSITY

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**CNSI – RIEC WORKSHOP ON  
NANO-ELECTRONICS, SPINTRONICS & PHOTOTRONICS**  
**OCTOBER 9<sup>TH</sup> AND 10<sup>TH</sup>, 2008**

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University of California at Santa Barbara  
1601 Elings Hall, California NanoSystems Institute (CNSI)

**PROGRAM****Thursday, October 9, 2008**

8:00 – 8:45 a.m.      **Continental Breakfast**  
*Elings Hall Lobby*

8:45 – 9:00 a.m.      **Welcoming Remarks**

**SESSION 1**

9:00 – 9:30 a.m.      **Professor Hideo Ohno, Tohoku University**  
*"Electric-field Manipulation of Magnetization Vector -Toward Electric-field Reversal"*

9:30 – 10:00 a.m.      **Professor David Awschalom, UC Santa Barbara**  
*"Manipulating Single Spins and Coherence in Semiconductors"*

10:00 – 10:30 a.m.      **Professor Nitta Junsaku, Tohoku University**  
*"Spin Coherent Transport in InGaAs Narrow Wires and Ring Structures"*

10:30 – 11:00 a.m.      **Morning Break**  
*Elings Hall Lobby*

**SESSION 2**

11:00 – 11:30 p.m.      **Professor Takahiro Hanyu, Tohoku University**  
*"MTJ-Based Nonvolatile Logic-in-Memory Circuit"*

11:30 – 12:00 p.m.      **Professor Sadamichi Maekawa, Tohoku University**  
*"Conservation Laws and Spin Motive Force in Magnetic Nanostructures"*

12:00 – 1:30 p.m.      **Lunch**  
*Elings Hall Lobby*

**SESSION 3**

1:30 – 2:00 p.m.      **Professor S. James Allen, UC Santa Barbara**  
*"Ferromagnetic Metal Spin Wave-guides and Spin-wave Devices"*

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**PROGRAM**

**Thursday, October 9, 2008**  
*Continued*

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|------------------|--|
| 2:00 – 2:30 p.m. | <b>Professor Masafumi Shirai, Tohoku University</b><br><i>"Computational Design of Highly Spin-polarized Ferromagnet/semiconductor Interfaces"</i> |
| 2:30 – 3:00 p.m. | <b>Professor Arthur Gossard, UC Santa Barbara</b><br><i>"Metallic Nanoparticles in Semiconductors"</i>   |
| 3:00 – 3:30 p.m. | <b>Afternoon Break</b><br><i>Elings Hall Lobby</i>   |
| <b>SESSION 4</b> |  |
| 3:30 – 4:00 p.m. | <b>Professor Umesh Mishra, UC Santa Barbara</b><br><i>"Gallium Nitride Electronics Research at UCSB"</i>   |
| 4:00 – 4:30 p.m. | <b>Professor Atsushi Tsukazaki, Tohoku University</b><br><i>"Quantum Transport at MgZnO/ZnO Interfaces"</i>  |
| 4:30 – 5:00 p.m. | <b>Professor Susanne Stemmer, UC Santa Barbara</b><br><i>"Structure and Properties of Complex Oxide Thin Films and Interfaces"</i>                 |
| 5:00 – 6:00 p.m. | <b>Poster Reception &amp; Refreshments</b><br><i>Elings Hall Lobby</i>   |
| 6:00 – 7:15 p.m. | <b>Dinner</b><br><i>The Faculty Club, UC Santa Barbara</i>   |

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**PROGRAM**  
**Friday, October 10, 2008**

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|--------------------|---|
| 8:00 – 8:45 a.m.   | <b>Continental Breakfast</b><br><i>Elings Hall Lobby</i>  |
| 8:45 – 9:00 a.m.   | <b>Opening Remarks</b>  |
|                    | <b>SESSION 5</b>  |
| 9:00 – 9:30 a.m.   | <b>Professor Chris Van de Walle</b><br><i>"Oxides as Semiconductors"</i>  |
| 9:30 – 10:00 a.m.  | <b>Professor Yoshiro Hirayama, Tohoku University</b><br><i>"Nuclear Magnetic and Electric Resonances Based on <math>nu=2/3</math> Domain Structure"</i> |
| 10:00 – 10:30 a.m. | <b>Professor Andrew Cleland, UC Santa Barbara</b><br><i>"Manipulating Single Photons Using Superconducting Quantum Circuits"</i>                        |
| 10:30 – 11:00 a.m. | <b>Morning Break</b><br><i>Elings Hall Lobby</i>  |
|                    | <b>SESSION 6</b>  |
| 11:00 – 11:30 p.m. | <b>Professor Rikizo Hatakeyama, Tohoku University</b><br><i>"Nanoelectronic Functionalization of Nanocarbons by Controlling Their Inner Nanospaces"</i> |
| 11:30 – 12:00 p.m. | <b>Professor John Bowers, UC Santa Barbara</b><br><i>"Energy Efficient Nanophotonics and Thermoelectrics"</i>   |
| 12:00 – 1:30 p.m.  | <b>Lunch</b><br><i>Elings Hall Lobby</i>  |
| 1:30 p.m.          | <b>Lab and Facility Tours</b><br><b>Individual Meetings (KITP, CNSI, Microfabrication facility, MBE facility, Materials Research Laboratory)</b>        |

