



Monthly Newsletter for November 2011

a n o e l e c t r o n i c s
R E S E A R C H I N I T I A T I V E

Dr. Jeffrey Welser, Director

NRI in the News



Call for NRI/Hans Coufal Fellowship Open. NRI students are welcome to apply. We would also encourage our professors and industry members who have had contact with a noteworthy student to investigate this as well. [More information here.](#)

NRI Onsite Review Poster Winners:

INDEX

First Place: **Srikant Srinivasan** of Purdue for "All Spin Logic: From devices to circuits"

Second Place (tie): **Charles Augustine** of Purdue for "Exploring Boolean/Non-Boolean Functions using Spin-Based Devices"

Surajit Sutar of UAlbany for "Incident-Angle Dependent Transport Across Graphene PN Junctions"

Third Place (tie): **Chenyun Pan** of Georgia Tech for "Performance Modeling of Graphene PN Junction Devices and Circuits"

Jean Anne Currivan of Harvard/MIT for "Low Energy Magnetic Domain Wall Logic"

WIN

First Place: **Graham Rowlands** of UC Irvine for "Time Domain Analysis of Stochastic Spin-Torque Oscillators"

Second Place: **Khalid Ashraf** of UC Berkeley for "Massively Parallel 3D Phase-Field Modeling of Multiferroic Devices: Theory & Experiment"

Third Place: **Alex Kozhanov** of UC Santa Barbara for "Spin Waves Topology & Imaging: Spin-Torque Triad"

NRI Review Season 2012

SAVE THE DATE!

The Center Reviews for 2011 may be done, but we've got 2012 lined up already!



MIND Onsite Review: August 14, 15 & 16 (including a Workshop) at McKenna Hall, Notre Dame.



SWAN Onsite Review: September 12 & 13, following TECHCON, at The Commons at the J. J. Pickle Research Center, Austin.



INDEX Onsite Review: Wednesday and Thursday, September 19 & 20 at CSNE at SUNY-Albany, Albany, NY.



WIN Onsite Review: Thursday, October 4 at UCLA, Los Angeles, CA.



NRI Annual Review: Tuesday, Wednesday & Thursday, October 30, 31 & Nov. 1 in the Washington D.C. area.

NRI Community Upcoming Events



2011 NSF Nanoscale Science & Engineering Grantees Conference

This three-day conference is designed to promote dissemination of innovative research progress, to facilitate research partnerships, to encourage interaction between Principal Investigators and NSF Program Directors, and to identify future research directions.

When: December 5-7, 2011

Where: Westin Hotel, Arlington, VA

Poster Submission: CLOSED

Registration: CLOSED

Please click for [Hotel Logistics and Technical Program information.](#)

ISDRS 2011

The biennial International Semiconductor Device Research Symposium focuses on exploratory research in electronic and photonic materials and devices.

When: December 7-9, 2011

Where: University of Maryland, Stamp Student Union, College Park, MD

Abstract Deadline: CLOSED

Please click on the link below for Registration, Hotel Logistics and Technical Program information: <http://www.ece.umd.edu/isdrs2011/index.html>



nanoHUB – Fundamentals of Nanoelectronics

Two 5-week classes taught by **Prof. Supriyo Datta** based on unique courses developed by him whose videotaped lectures posted on the nanoHUB have attracted 75,000+ viewers since 2004.

When: begins January 2012

Where: on line (password and log-in sent after registration)

Cost: \$30 per course

Please click on the link below for Registration, cost and additional information:

<https://nanohub.org/groups/purdue>



DAC 2012

Abstracts must be submitted by November 29th, 2011. Final manuscripts (6 pages, with up to 4 additional pages of supplementary material) are due on December 5th, 2011. Papers that encompass novel and unpublished NRI-related research efforts are encouraged!

The call for contributions can be found at: <http://www.dac.com/call+for+contributions.aspx>

When: June 3-7, 2012

Where: Moscone Center, San Francisco, CA

Abstract Deadline: November 29th, 2011

Please click for [Registration, Hotel Logistics and Technical Program information](#).

NRI Calendar of Upcoming Events

November 16: GC Meeting

December 6: [e-Workshop: Circuit Applications of BISFETs](#).

December 7: TPG Meeting

New Publications

NOTE: All the NRI Center's Mid-Year Reports are currently available to the GC, TPG and Assignees/Liaisons at <http://www.src.org/program/nri/advisory-board/tpg/?tab=nri-centers> , click on the link "Semi and Year-End Annual Reports".

Don't forget to submit your new publications to NRI regularly – see the "University Requests" section below for more information. Following are all publications submitted since September 22, 2011. *Remember that anything marked as a Pre-Publication should NOT be shared outside of the NRI member community.*

**Pre-publication – do not distribute outside of NRI.*

WIN CENTER – 1 publication, 0 pre-pub

[Giant Lithographically-Tunable Configurational Anisotropy in Concave Nanomagnets](#)

INDEX CENTER – 2 publication, 2 pre-pubs

[*Modeling All Spin Logic: Multi-magnet Networks Interacting via Spin Currents](#)

[*Device- and System-Level Performance Modeling for Graphene P-N Junction Logic](#)

[Low Energy Magnetic Domain Wall Logic in Short, Narrow Ferromagnetic Wires](#)

[High Efficiency Switching using Graphene Based Electron "Optics"](#)

SWAN CENTER – 0 publication, 0 pre-pubs



MIND CENTER – 2 publications, 7 pre-pubs

[*Band Alignment of TFET Heterojunctions and Post Deposition Annealing Effects by Internal Photoemission Spectroscopy](#)

[*Tunnel Field-effect Transistor Heterojunction Band Alignment by Internal Photoemission Spectroscopy](#)

[*AlGaSb/InAs Tunnel Field-Effect Transistor with On-Current of 78 \$\mu\text{A}/\mu\text{m}\$ at 0.5 V](#)

[*Clocking Magnetic Field-Coupled Devices by Domain Walls](#)

[*Simulation of Magnetization Reversal and Domain-Wall Trapping in Submicron Permalloy Wires with Different Wire Geometries](#)

[*Performance of AlGaSb/InAs TFETs with Gate Electric Field and Tunneling Direction Aligned](#)

[*Development of CAD Tools for Nanomagnetic Logic Devices](#)

[Reduction of Phonon Lifetimes and Thermal Conductivity of a Carbon Nanotube on Amorphous Silica Implementation of a Nanomagnetic Full Adder Circuit](#)

University Requests

Pub Submission: it's your duty! Please send them to [Allison](#) when you *first* send in your paper to the publication for review and she will do the rest! No usernames or passwords to remember, just attach the pub, hit "SEND" and you will be in compliance with your Center's contract. Of course, it's up to our university members to get those pubs into us so please send us your papers and presentations. We might even start a contest for most pubs!

Any student or Postdoctoral Researcher participating in SRC research is required to register for an SRC web account, whether they are directly funded by the contract or leveraged from another source. That's right, if you are an NRI supported student all you have to do is follow these simple directions on the new SRC website:

Students or Postdoctoral researchers new to SRC:

- Go to the SRC website at <https://www.src.org/app/account/sign-in/> to register for a web account **including** completing the academic information portion of the form. We recommend that all students upload their resume. Our member companies have recruiters that look at this site first when they have positions to fill.

Student or postdocs who have previously been on SRC research:

- Update your graduation date, advisor, research task # and resume at <https://www.src.org/app/account/edit/education/>

Please be sure *all* your NRI students and post-docs are registered on the website and that their information (particularly *graduation date*) is current. For questions or help contact leeann.clewell@src.org

Should you have any questions, ideas, information to share, website issues or just want to talk about NRI, please call or email [Allison](#) at 919-941-9433, she will be happy to help!

If you no longer are interested in receiving the NRI Newsletter, please reply to this email saying so and you will be removed from the list.