

Theodore Robert Harris

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Education

Ph.D. in Electrical Engineering, **North Carolina State University**, 2009

Adviser: Michael B. Steer, Ph.D.

- Dissertation Subject: Electrothermal modeling of three-dimensional circuits

Masters of Science in Electrical Engineering, **North Carolina State University**, 2007

- Focus in Photonics and Nanoelectronics

Bachelors of Science in Electrical Engineering, **UNC Charlotte**, 2005

- Minor in Mathematics

Work Experience

August 2005 – June 2007 **NCSU Nanofabrication Facility**, Raleigh, NC

Photolithography Engineer. Supervisor: Carl Osburn, Ph.D.

- Support and maintenance of photolithography lab, including calibration and repair of instruments, and training and supervising users

Summer 2004 **National Institute of Standards and Technology**, Gaithersburg, MD

Materials Science Research Laboratory

Guest Researcher. Adviser: Peter Schenck, Ph.D.

- Selected for NSF fellowship
- Optical characterization of thin films grown by pulsed laser deposition and electron beam vaporization for Ni/Au p-type contacts

2002 - 2003 **Integrated Electronic Innovations**, Charlotte & Cary, NC

Design and Fabrication of VLSI Systems. Supervisor: Stephen Bobbio, Ph.D.

- Experience with reactive ion etch, metal machining, technical drawing, vacuum technology, plasma chemistry, RF systems, and investigation of electrostrictive polymer transducers, and atmospheric plasma.

Summer 2000 **Moulton Company Under contract to US Department of Interior**, Columbia, MD

Teaching Assistant

Technical Skills

- Graduate coursework in quantum physics, solidstate device electronics, laser electronics, IC fabrication, electromagnetics, materials science, MOSFET physics, digital layout, photonics, RF design for wireless systems, circuit simulators, and soft electronics.
- Experienced with integrated circuit chip design, layout, and fabrication utilizing clean room including experience with pulsed laser deposition, electron beam vaporization, Varian, and AJA sputtering of thin film metals; plasma etching, rapid thermal annealing, photolithography using Karl Suss MA55, MA6, MJB3, and HTG contact aligners, diffusion, and oxidation.
- Engineering software: C/C++, HSPICE, Mentor Graphics, Matlab, Maple, MathCAD, Silvaco Athena, Atlas, Cadence Virtuoso, Analogue Artist, ISETCAD, DESSIS
- Unix and Linux system administration and security of systems, including kernel level configuration, and SELinux security policy.

Honors

- Brandeis Collegiate Institute American Jewish University fellow, Benjamin O. Hood Engineering Service Award, Member of Eta Kappa Nu and Omicron Delta Kappa Honors Societies, IEEE Student President, Engineering Leadership Academy alumnus, Member of UNC Charlotte Electrical Computer Engineering Department Advisement Committee

Selected Publications

T. R. Harris, S. Melamed, S. Luniya, W. R. Davis, M. B. Steer, L. E. Doxsee, K. Obermiller, C. Hawkinson, "Thermal Analysis and Verification of a Mounted Monolithic Integrated Circuit," IEEE SoutheastCon, Charlotte, NC, March. 2010.

T. R. Harris, C. Ortero, S. Priyadashi, S. Melamed, M. B. Steer, W. R. Davis, P. Franzon, "Cell-based Electro-thermal Simulation of a Digital 3D-IC Using an Extracted Thermal Network," Government Microcircuit Applications Conf., Reno, NV, Mar. 2010.

T. R. Harris, N. Kriplani, W. Davis, P. Franzon, M. B. Steer. Reduced Order Electro-Thermal Modeling of Three-Dimensional Integrated Circuits using RC Networks. Government Microcircuit Applications Conf., Orlando, FL, Mar. 2009.

T. R. Harris, S. Luniya, R. Davis, P. Franzon, M. B. Steer, Efficient Electrothermal Simulation of Three-Dimensional Integrated Circuits Using Compact Modeling, Government Microcircuit Applications Conf., Las Vegas NV 2008