

Curriculum Vitae

DEBORAH ANN FIXEL

EDUCATION:

Ph.D. in Electrical Engineering, University of Wisconsin, Madison, August 2007.

Dissertation: **“Hot carrier modeling in metal-oxide-semiconductor devices using the convective scheme”**

Advisor: Professor William N. Hitchon

M.S. in Electrical Engineering, University of California, Los Angeles, August 1999.

B.E. in Electrical Engineering, University of New Mexico, Albuquerque, NM, May 1988.

TEACHING EXPERIENCE:

Visiting Lecturer and Laboratory Coordinator, Department of Engineering, Trinity College, July 2017-present.

Courses taught: Measurement, Instrumentation and Analysis, Linear Circuit Theory Laboratory and Engineering Computation and Analysis

Visiting Assistant Professor, Department of Engineering, Trinity College, July 2015-June 2017.

Courses taught: Semiconductor Electronics I, Semiconductor Electronics II, and Linear Circuit Theory

Visiting Assistant Professor, Department of Electrical and Computer Engineering, Lafayette College, July 2013-June 2015.

Courses taught: Introduction to Engineering, Basic Electric Circuit Analysis, Introduction to Solid State Devices and Circuits, Analysis and Design of Solid State Circuits, Engineering Electromagnetics, and Physics of Semiconductors

Teaching Assistant, University of Wisconsin, Madison, Department of Electrical and Computer Engineering, September 1999 – December 2002

Courses taught: Basic Electric Circuits, Electromagnetics and Semiconductor Device Physics

Teaching Assistant, University of California, Los Angeles, Electrical Engineering Department, Spring 1997

Course taught: Semiconductor Devices Fabrication Laboratory

RESEARCH EXPERIENCE:

Contract Associate, Sandia National Laboratories, November 2007 – July 2013.

Responsibilities included code development for Charon device simulator, an object-oriented C++ code. Implemented physical models for metal-oxide-semiconductor field-effect transistors and

heterojunction bipolar transistors, including radiation effects models. Also contributed to code verification efforts, regression testing, code maintenance and documentation.

Year-round Graduate Student Intern, Sandia National Laboratories, September 2005-November 2007. Duties included software development for Charon device simulator. Implemented physical models for semiconductor devices and participated in verification efforts, code maintenance and documentation.

Summer Intern, Sandia National Laboratories, June 2005-August 2005 and June 2004-August 2004. Duties included software development for Charon device simulator.

Summer Intern, Sandia National Laboratories, June 2003-August 2003. Duties included software development for Xyce, and in-house circuit simulator. Added physical models to the semiconductor device package for Xyce.

Research Assistant, University of California, Los Angeles, 1995-1999. Performed optimization and scaling studies for silicon-on-sapphire (SOS) complementary metal-oxide-semiconductor (CMOS) transistor devices.

RELATED EXPERIENCE:

Project Engineer, United States Air Force, Los Angeles Air Force Base, October 1988-November 1992. Contributed to team efforts to manage cost and schedule for multi-million dollar satellite program in support of Strategic Defense Initiative Program.

Aerospace Ground Equipment Mechanic, United States Air Force, July 1981-April 1985. Duties included maintenance and servicing of aerospace ground equipment used to support Air Force planes while on the ground.

PROFESSIONAL ORGANIZATIONS:

Institute of Electrical and Electronics Engineers

STUDENT HONORS AND AWARDS:

Gerald Holdridge Award for Excellence in Teaching (University of Wisconsin, Madison), 2002.

Eta Kappa Nu, Electrical Engineering Honor Society, 1987.

JOURNAL PUBLICATIONS:

D.A. Fixel, G.L. Hennigan and W.R. Wampler, "Modeling of III-V HBTs exposed to neutron irradiation", Journal of Radiation Effects, Research and Engineering (JRERE), 1 February 2013.

D.A. Fixel and W.N.G. Hitchon, “Kinetic investigation of electron-electron scattering in nanometer-scale metal-oxide-semiconductor field-effect transistors”, Semiconductor Science and Technology, March 2008.

D.A. Fixel and W.N.G. Hitchon, “Convective scheme solution of the Boltzmann transport equation for nanoscale semiconductor devices”, Journal of Computational Physics, December 2007.

CONFERENCE PROCEEDINGS:

D.A. Fixel, G.L. Hennigan and W.R. Wampler, “Modeling of III-V HBTs exposed to neutron irradiation”, Hardened Electronics and Radiation Technology (HEART) Conference, Monterey, California (March 13-16, 2012).