

Dr. Curtis R. Taylor

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Appointments

Assistant Professor of Mechanical Engineering, August 2005
Virginia Commonwealth University, Richmond, VA

Research Associate, summer 2004
Lawrence Berkeley National Lab, National Center for Electron Microscopy, Berkeley, CA

National Science Foundation IGERT Fellow, 2002 – 2005
Department of Physics/Mechanical Engineering, University of Arkansas, Fayetteville, AR

Graduate Research Assistant, 2000 – 2001
High Density Electronics Research Center, University of Arkansas, Fayetteville, AR

Project Manager, 1999 – 2000
Capital One Financial Services Inc., Richmond, VA

Junior Manufacturing Engineer (intern), summer 1997, 1998
United Technologies-Sikorsky Aircraft Corporation, Stratford, Connecticut

Intelligence Analyst (intern), summer 1995
Central Intelligence Agency, McClean, VA

Education

Doctor of Philosophy (Ph.D.) in Microelectronics-Photonics - 2005
(Interdisciplinary degree in Physics and Electrical Engineering; specializing in nanomechanics)
University of Arkansas, Fayetteville, AR
National Science Foundation (NSF) IGERT Fellow
Dissertation title: *Investigation of nanoindentation for the directed self-assembly of nanostructures*

Certificate of Completion - Multi-scale Modeling and Simulation of Nano Mechanics and Materials
Northwestern University, Evanston, IL
2004 National Science Foundation Summer Institute on Nano Mechanics and Materials

Masters of Science (M.S.) in Microelectronics-Photonics - 2002
(Interdisciplinary degree in Physics and Electrical Engineering)
University of Arkansas, Fayetteville, AR
Certificate in Electronics Manufacturing Engineering - 2001
Thesis title: *Mechanical design issues in the fabrication of a high temperature superconducting tunable RF filter prototype*

Bachelor of Science (B.S.) in Mechanical Engineering - 1998
University of Maryland, College Park, MD
Banneker Scholar (full-scholarship), University Honors Student

Citation in Total Quality Management - 1998

Robert H. Smith School of Business, University of Maryland-College Park, MD
(QUEST 4-year program)

Awards and Honors

- NSF Fellowship to attend the NSF Summer Institute on Nanomechanics and Materials, June 7-11, 2004
- National Science Foundation (NSF) IGERT Graduate Fellowship
- University of Arkansas Doctoral Fellowship
- National Science Foundation (NSF) Graduate Research Fellowship - Honorable Mention
- University of Maryland Benjamin Banneker Scholar - Full Scholarship
- National Engineering Honor Society (Tau Beta Pi)
- Mechanical Engineering Honor Society (Pi Tau Sigma)
- Outstanding Academic Achievement Award, University of Maryland 1998

Publications

- Taylor, C. and Radmilovic, V., Structure and Nanomechanical Properties of Grain Boundary Precipitate-Free-Zones (PFZs) in Peak Aged AlCuSiGe Alloy”, Scripta Materialia, (2006) in review (draft available).
- Taylor, C., Stach, E., Malshe, A., Salamo, G. Mechanically Biased Self-Assembly of Quantum Dots Using Nanoindentation, Nano Letters (2006), to be submitted (draft available).
- Taylor, C., Stach, E., Malshe, A., *In-situ TEM annealing of GaAs(100) Nanoindentations*, Journal of Materials Research (2005), to be submitted (draft available).
- Taylor, C., Prince, R., Riestler, L., Salamo, G., Oh Cho, S., Malshe, A., *Characterization of ultra-low-load (μN) nanoindentations in GaAs (100) using a cube corner tip*, Journal of Smart Materials and Structures **14** (2005) p. 963-970.
- Taylor, C., Stach, E., Malshe, A., Salamo, G. *Nanoscale Dislocation Patterning by Ultralow Load Indentation*, Applied Physics Letters, **87**, 073108 (2005). (selected for the Virtual Journal of Nanoscale Science & Technology)
- Taylor, C. Stach, E., Malshe, A., Salamo, G. *Analysis of Nanoscale Deformation in GaAs(100): Towards Patterned Growth of Quantum Dots*, E5: Novel Materials, Synthetic Structures and Nanomanipulation of Defects/Dopants Proceedings, Materials Research Society (MRS) Spring Meeting 2005, March 30, 2005, San Francisco, California.
- Taylor, C., Prince, R., Malshe, A., Riestler, L., Salamo, G., Oh Cho, S. *Investigation of Ultra-Low-Load Nanoindentation for the Patterning of 3-D Quantum Structures*, SPIE International Symposium in Nano- and Microtechnology: Materials, Processes, Packaging, and Systems, December 16-18, 2002, Melbourne, Australia.
- Taylor C., Naseem H., Brown W., *Characterization of Adhesives for Low Temperature Microelectronics and Photonics Packaging*, 2002 Symposium on Polymers for Microelectronics at Winterthur, May 8-10 2002, Newark, Delaware.
- Rowland, M. and C. Taylor, 1998, *Aerospace Fiber Optic Manufacturing*, Proceedings, Integrated Manufacturing Process and Control Technologies, American Helicopter Society 54th Annual Conference, May 21-24, 1998, Washington, DC.

Presentations at Professional Meetings

- *Analysis of Nanoscale Deformation in GaAs(100): Towards Patterned Growth of Quantum Dots*, E5: Novel Materials, Synthetic Structures and Nanomanipulation of Defects/Dopants, Materials Research Society (MRS) Spring Meeting 2005, March 30, 2005, San Francisco, California.
- *Investigation of Ultra-Low-Load Nanoindentation for the Patterning of 3-D Quantum Structures*, SPIE International Symposium in Nano- and Microtechnology: Materials, Processes, Packaging, and Systems, December 16-18, 2002, Melbourne, Australia.
- *Characterization of Adhesives for Low Temperature Microelectronics and Photonics Packaging*, 2002 Symposium on Polymers for Microelectronics at Winterthur, May 8-10 2002, Newark, Delaware.
- *Aerospace Fiber Optic Manufacturing*, Proceedings, Integrated Manufacturing Process and Control Technologies, American Helicopter Society 54th Annual Conference, May 21-24, 1998, Washington, DC.
- *Characterization of Fiber Optic Epoxy Adhesives: Lap Shear Measurement*. (1997) University Park, PA, Pennsylvania State University: American Society of Mechanical Engineering (ASME) Regional Conference.
- *Characterization of Fiber Optic Epoxy Adhesives: Lap Shear Measurement*. (1997), National Society of Black Engineers (NSBE) National Convention, Charlotte, North Carolina

Invited Talks/Colloquia

- *Nanoscale Surface Patterning of Quantum Dots*, Physics Department Colloquium (invited talk), Rochester Institute of Technology, October 29, 2004, Rochester, New York.
- Directed Self-Assembly of Quantum Dots by Nanoindentation, VCU Physics Department Colloquium, September 9, 2005

Reviewer for Grants

- Out-of-state expert (reviewer) for research proposals submitted under the Research Competitiveness Subprogram of the Board of Regents of Louisiana Support Fund Research & Development Program, 2005-2006
- National Science Foundation (NSF) Review Panelist for Division of Design, Manufacture, & Industrial Innovation (DMII), April 2005

Workshops and Conferences Organized

- Symposium Co-Organizer, 2006 Fall Material Research Society Meeting – “Quantum Dots: Growth, Behavior, and Applications”
- Symposium Co-Organizer 2006 ASME International Conference on Manufacturing Science and Engineering, University of Michigan – “Nano and Micro Mechanical and Related Hybrid Tools for Nanomanufacturing”
- Chairperson, Tech Summit Scholar Conference, University of Arkansas, 2002-2004

Professional Affiliations

Member, Virginia Nanotechnology Consortium

Member, Materials Research Society (MRS)

Member, International Microelectronics and Packaging Society (IMAPS)

Member, American Society of Mechanical Engineers (ASME)

Officer, National Society of Black Engineers (NSBE) - 1997-1998 Chapter Pre-College Initiative Chairperson