

**Sean Washburn**

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**EDUCATION**

1982: PhD in physics, Duke University

1976: BS (summa cum laude) in physics, Stetson University

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**EMPLOYMENT:**

2010 – present: University of North Carolina at Chapel Hill, Assoc Chair of Applied Science & Engineering

2008 – present: University of North Carolina at Chapel Hill, Assoc Chair of Physics & Astronomy

2004 - present: University of North Carolina at Chapel Hill, Professor of Biomedical Engineering

2003 - present: Cary C Boshamer Distinguished Professor

2001 - present: University of North Carolina at Chapel Hill, Professor of Computer Science

1999 - 2007: University North Carolina at Chapel Hill, Chair of Applied and Materials Sciences

1998 – present: Co-Director North Carolina Center for Nanoscale Materials

1997 - 2002: University of North Carolina at Chapel Hill, Lyle V Jones Professor of Physics

1996 - present: University of North Carolina at Chapel Hill, Professor of Applied Science

1991 - present: University of North Carolina at Chapel Hill, Professor of Physics

1982-1991: IBM Research Division, Yorktown Heights, Research Staff Member

1982: Duke University, Durham NC 27706, Research Associate

**AWARDS, HONORS:**

1987: Outstanding Technical Achievement Award (from IBM) for studies of conductance fluctuations.

1997: Lyle V Jones Distinguished Professor

2000: Fellow of the American Physical Society

2003: Cary C Boshamer Distinguished Professor

2004: Fellow of the Institute of Physics

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**RESEARCH INTERESTS:**

Original research interests were in effects of degree of structural disorder on glassy behavior in single crystals of solid molecular hydrogen. Since 1982, research has been directed toward the study of quantum mechanical effects in the transport coefficients of condensed matter systems. Several topics have been investigated including macroscopic quantum tunneling in Josephson junctions, and quantum conductance effects including Aharonov-Bohm oscillations. Since 1991 at UNC, additional research programs in intuitive computer interfaces for microscopies at nanometer-scales, surface manipulation of inorganic and organic samples, carbon nanotube mechanical and electromechanical devices have been established. At the moment the research is aimed at electrical and mechanical properties at the scale of nanometers and at applications of nanometer objects in medicine.

**PUBLICATIONS:** Total of 176 [articles](#) published and in press (125 refereed, 48 by invitation).

**SERVICE:** Member of numerous NSF proposal review panels. Member of NRC Associateship review in physics. Member of NSF-GRFP review panel. Member of site visit team for NRC. Member of DOE review panels. Referee for NSF (DMR, ARI, SBIR) proposals, Army Research Office proposals, Cottrell fellowships, various books and book manuscripts, Nature, Science, Physical Review Letters, The Physical Review, Applied Physics Letters, Journal of Applied Physics, Journal of Low Temperature Physics, Journal of Physics A, Journal of Physics Condensed Matter, Europhysics Letters, Journal of Vacuum Science & Technology, JZUS, and ETRI Journal. Editorial Board for *Encyclopaedia of Solid State Physics* and for Reports on Progress in Physics.

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### **STUDENT ADVISEES:**

Graduate students: WX Gao (PhD, 1995; TI), VC Long (PhD, 1996; Colby College), KP Li (PhD 1999), K Strohmaier (MSc, 1996), E McGucken (PhD, 1997), XH Pan (nd), Y Wang (nd), SB Paulson (PhD, 2000, JMU), NJ Kim (PhD, 2000, Univ Mo), NE Snider (MSc, 2000), K Eng (PhD 2001, Sandia), C Dwyer (PhD 2003; Duke Univ), M Stadermann (PhD 2004; LBL), S Padhmanabhan Asokan (PhD 2006, UNC-CH), CT Lawyer (MSc, 2006, IDA), OJ Sul (PhD 2006, Stevens), K Alexander (MSc 2007), AR Hall (PhD 2007, UNC-G, Wake Forest Univ), K Skinner (2008, UNC-CH, Dow Corning), N Williams (MSc, 2012), T Cui (PhD, 2013).

Undergraduate students: C Neumann (Duke, Elec Eng), T Munsat (Princeton, Plasma Physics, PhD 2001; Col State Univ), B Rodriguez (Virginia, Physics), R McNees (UT-Austin) R Palmer, CM Chen (Cal Tech, Appl Phys; PhD 2004; JPL), R Adams, A Liu, A Patel (RTI), AR Hall (UNC Materials Science PhD 2007, UNC-G), L Jawerth (Harvard Physics PhD, MPI), R Prakash (Stanford, MD-PhD), R Holliday (USMC), L Hartle (Harvard), R Malcolm, A Garner (NCSU Vet School), A Barasorda, G Seider, N Seider, E Khvostova, E Bluhm.

### **POSTDOCS**

IBM: CJB Ford (Cambridge), D Popovic (FSU-NHMFL), SQ Murphy (Univ Oklahoma).

UNC: J Liu (SGS-Thomson), A Cassam-Chenai, MR Falvo (UNC), M Guthold (Wake Forest), S Papadakis (Johns-Hopkins, APL), RL Carroll (Univ W Va, Mylan Laboratories), K Skinner (Dow Corning).