Leigh L. Noble

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Employment

- Director; NobleTutor.com; New Paltz NY
  Specializing in tutoring college level math coursework and dedicated to continuing scholarly research activities.
- National Research Council Post-doctorate position; May 2005 – June 2008
  In residence at United States Military Academy (USMA, West Point NY), I taught undergraduate cadets and performed research under supervision of Army Research Laboratory (ARL, Aberdeen MD) scientists Thomas Wright and James McCauley. Research involved cracking of advanced ceramics and relationships between microstructure, stress distributions, and cracking during high strain rate, high compressive stress conditions.

Education

- PhD in Mathematics, minor in Mechanics and Materials Science; Advisor: Chi-Sing Man
  University of Kentucky, Lexington KY; December 2004; GPA: 3.8/4.0
- MA in Mathematics; University of Kentucky, Lexington KY; December 1998; GPA: 3.9/4.0
- BS in Mathematics, minor in Chemical and Physical Science;
  Meredith College, Raleigh NC; August 1995; GPA: 3.9/4.0, *Summa Cum Laude*

Publications

- "A unified theory of resonance shifts in ultrasound resonance spectroscopy" (working title). C.-S. Man and L. Noble, in progress.
- "A non-destructive measurement scheme for through-thickness crystallographic texture coefficient functions of cubic metal sheets" (working title). Leigh L. Noble, in progress.
- "Quantitative relationships between stress distributions, microstructure, and high strain rate performance of advanced ceramics: an interim report." Leigh L. Noble, *Proceedings of the Fourteenth Annual ARL/USMA Technical Symposium*, 2007.
- "Quantitative relationships between stress distributions, microstructure, and high strain rate performance of advanced ceramics: a preliminary report." Leigh L. Noble, *Proceedings of the Thirteenth Annual ARL/USMA Technical Symposium*, 2006.
- "Recovery of through-thickness texture profiles in orthorhombic sheets of cubic metals by resonance spectroscopy." Leigh L. Noble. PhD Thesis, University of Kentucky, 2004.
- "Recovery of through-thickness texture profiles in sheet metals by resonance spectroscopy." Leigh L. Noble, Chi-Sing Man and Gen Nakamura. In D.O. Thompson and D.E. Chimenti, editors, *Review of Progress in Quantitative Nondestructive Evaluation*, volume 23, pp. 1232-1239. AIP, 2004
- "Designing textured polycrystals with specific isotropic material tensors: the ODF method." C.-S. Man and L. Noble, *Rend. Sem. Mat. Univ. Politec. Torino* **58** (2000), no. 2, 155–170 (2002). MR1986455 (2004e:82060)

Research Experience

- National Research Council Post-doctorate Research Associate; May 2005 –June 2008
- Research Assistant for Chi-Sing Man; University of Kentucky Department of Math; Summer and Fall 1998, Spring and Summer 1999, Spring and Fall 2000, Spring 2001, Spring and Summer 2002, Spring and Summer 2003
- Graduate Fellow; Idaho National Engineering and Environmental Laboratory; Summer 2000; experimented with acoustoelasticity at their facilities

Teaching Experience

- United States Military Academy, West Point NY
  - Integral Calculus and Introduction to Differential Equations—Instructor, Fall 2007
    (200 level) Integration of single variable and vector-valued functions. Introduction to ordinary differential equations.
  - Introduction to PDEs and Vector Calc—Instructor and Course Director, Spring 2007
    (300 level) Hybrid course for environmental engineering majors. Vector calculus with vector integral theorems and differential equations with introduction to PDEs.
  - Mathematical Modeling—Co-Instructor, Spring 2007
    (300 level) Modeling course for mathematics majors. Co-taught with another civilian postdoc. Shared lecturing duties, jointly wrote syllabus, homework, and exams. Graded and assigned final grades as a team.
  - Differential Calculus (100 level)—Instructor, Spring 2006
    (100 level) Single variable differentiation, vector functions, and partial derivatives.
- University of Kentucky, Lexington KY
  - Elementary Calculus and Its Applications—Recitation Instructor, Fall 2002
    (100 level) Single variable differential and integral calculus with applications to business, biology, and physical sciences.
  - College Algebra—Instructor, Fall 2001
    (100 level) Algebra and analytic geometry.
  - Introduction to Linear Algebra—Instructor, Summer 2001
    (200 level) Algebra of matrices, Gaussian elimination, singular value decomposition, least squares approximation, determinants, eigenvalues and eigenvectors.
  - Intermediate Algebra—Instructor, Fall 1999
    (remedial level) Topics from second year high school algebra.
  - Calculus II—Recitation Instructor, Fall 1997 and Spring 1998
    (100 level) Single variable integration.
- Jefferson Community College, Louisville KY
  - College Algebra—Assistant Instructor, Fall 2001
    (100 level) Algebra and analytic geometry. Monitored online forum, responded to student questions, and assisted in guiding discussion for this internet-administered distance learning course.

Presentations

- "A non-destructive measurement scheme for through-thickness crystallographic texture coefficient functions of cubic metal sheets" (working title) at the AMS Southeastern Sectional Meeting Special Session on Mathematical Problems in Mechanics and Materials Science; Lexington KY; March 27-28 2010 (planned); **invited**
- "Ordering of Search Engine Results: google it!" at the Spuyten Duyvil Undergraduate Mathematics Conference; New Paltz NY; April 25 2009
- "Fostering Technical Writing in the Undergraduate Math Classroom" at the AMS Annual Meeting; San Diego CA; January 9 2008
- "Sharing the Students' Classroom: Joint Teaching Tales" co-presented with Amy H Lin Erickson at the AMS Annual Meeting; San Diego CA; January 6 2008
- "A Unified Theory of Resonance Shifts in Ultrasound Resonance Spectroscopy" at the Fifteenth Annual ARL/USMA Technical Symposium; Atlantic City NJ; October 30 2007
- "A Unified Theory of Resonance Shifts in Ultrasound Resonance Spectroscopy" at the Society for Natural Philosophy meeting on the Interface between Atomistic and Continuum Theories; Houston TX; October 27 2007
- "Characterizing internal stress states in advanced ceramics using fractal analysis" at the AMS Annual Meetings, MAA Session on Mathematics Experiences in Business, Industry, Government; New Orleans LA; January 7 2007
- "Quantitative relationships between stress distribution, microstructure, and high strain rate performance of advanced ceramics: an interim report" at the Fourteenth Annual ARL/USMA Technical Symposium; Aberdeen MD; November 1 2006
- "Quantitative relationships between stress distribution, microstructure, and high strain rate performance of advanced ceramics: a preliminary report" at the Thirteenth Annual ARL/USMA Technical Symposium; Aberdeen MD; November 2 2005
- "Nondestructive recovery of through-thickness texture profiles in sheet metals" at the Army Research Lab Center for Impact Studies Seminar; Aberdeen MD; March 1 2005; **invited**
- "Recovery of texture coefficients as functions of depth in sheet metals" at the 2004 SIAM Annual Meeting; Portland OR; July 2004
- "Recovery of through-thickness texture profiles in sheet metals by resonance spectroscopy" poster with Chi-Sing Man at the 30th Annual Review of Progress in Quantitative Nondestructive Evaluation Conference; Green Bay WI; July 2003
- "Introduction to quantitative texture analysis" at the Fifteenth Annual Eastern Kentucky University Symposium in the Mathematical, Statistical, and Computer Sciences; Richmond KY; April 2001; **award for Best Graduate Student Presenter**
- "What do aluminum cans and cars have to do with infinite series and vector spaces?" to undergraduates at Birmingham-Southern College; Birmingham AL; March 2001; **invited**

Computer Experience

- NIST's OOF2 (for finite element analysis of microstructures)
- Linux/Unix operating systems; interest in open source software such as Sage
- Microsoft Windows XP, Vista and various Microsoft Office applications, including Excel
- Matlab, Maple, and Mathematica
- HTML, HTML+CSS, Blackboard, LaTeX

Professional Affiliations

- American Mathematical Society; member since 1996
- Society for Industrial and Applied Mathematics; member since 1997
- Society for Natural Philosophy; member since 2007

Conference Attendance

- AMS Annual Meetings—San Francisco CA (January 2010 planned), Washington DC (January 2009), San Diego CA (January 2008), New Orleans LA (January 2007), Atlanta GA (January 2005), New Orleans LA (January 2001)
- AMS Sectional Meetings—Lexington KY (March 2010 planned), Louisville KY (March 1998)
- ARL/USMA Technical Symposiums—Fifteenth Annual Symposium, Atlantic City NJ (October 2007); Fourteenth Annual Symposium, Aberdeen MD (November 2006); Thirteenth Annual Symposium, Aberdeen MD (November 2005)
- Review of Progress in Quantitative Nondestructive Evaluation—Thirtieth Annual Conference, Green Bay WI (July 2003)
- SIAM Annual Meetings—Boston MA (July 2006), Portland OR (July 2004), Atlanta GA (May 1999)
- SIAM Conferences on Mathematics for Industry—Toronto ON Canada (October 2003)
- SIAM Math-In-Industry Workshop—Claremont CA (June 1999)
- Society for Natural Philosophy—Meeting on the Interface Between Atomistic and Continuum Theories, Houston TX (October 2007)
- Spuyten Duyvil Undergraduate Mathematics Conference—New Paltz NY (April 2009)
- US National Congress of Theoretical and Applied Mechanics—Fifteenth Congress, Boulder CO (June 2006); Fourteenth Congress, Blacksburg VA (June 2002)
- Other Meetings and Workshops
  - NIST Workshop on OOF2, Gaithersburg MD (August 2006)
  - Eastern Kentucky University Symposium in the Mathematical, Statistical, and Computer Sciences—Fifteenth Annual Symposium, Richmond KY (April 2001)

Service to Profession

- General math community
  - Reviewer #045820 for AMS Mathematical Reviews; Fall 2006 – present
  - Co-Moderator, MAA General Contributed Paper Session 9; AMS Annual Meeting; January 9 2007
- Department of Mathematical Sciences, USMA
  - Member, Math Sciences Dept Quality of Life Committee; Fall 2005 – June 2008
  - Delivered 2 hours of general math review for the Fundamentals of Engineering Exam; Geography and Environmental Engineering Department; March 2007
  - Delivered 1 hour of linear algebra review for the Fundamentals of Engineering Exam; Math Sciences Department; 2007
- Department of Mathematics, University of Kentucky
  - Member, Math Department Chair Search Committee; Fall 1999
  - Member, Math Department Graduate Student Council; 1999 academic year
  - Organized and co-taught WindowsNT orientation for returning math graduate students; Fall 1999
- General public
  - Judge for high school Math/Computer Science and Engineering Technology divisions for the 2008 Tri-County Science and Technology Fair; Somers NY; April 12, 2008

Community Service

- Volunteer; Transgender Legal Defense & Education Fund, New York NY;
  July 2007 – present

  Nonprofit organization committed to ending discrimination based upon gender identity and expression. Trained member of their press speakers bureau. Granted use of my likeness for their website, brochure and other publications.
- Co-founder and Leader; Lexington Dress & Gender Alliance, Lexington KY;
  April 2002 – June 2003

  Peer social support group for transgendered persons, their significant others, friends, families, and community allies; continues to meet regularly under new leadership.
- Board Member; Lexington Gay and Lesbian Service Organization, Lexington KY;
  January 2002 – March 2003

  Committed to improving the quality of life of the gay, lesbian, bisexual and transgendered community and their families of Central and Eastern Kentucky.
- Volunteer; Moveable Feast, Lexington KY; October 1998 – February 2003

  Dedicated to cooking and delivering hot meals to people with AIDS

Other Experience

- Professional Tutor; SUNY New Paltz; New Paltz NY; Spring and Fall 2009
  Part-time tutor for various Educational Opportunity Program math groups.
- Support Staff; Hudson Valley LGBTQ Community Center; Kingston NY; July – Dec 2008
  Provided administrative and technical support; membership database conversion and maintenance; website maintenance; HTML email blasts to a 1200 member database.
- Tutor; Brainfuse Online Tutoring, New York, NY; October 2004 – April 2005
  Math skills review and support for fifth through eleventh graders using web interface.
- Instructor; Huntington Learning Center, Cary NC; January – August 1996
  Tutored third through tenth graders in mathematics and reading.
- Science Laboratory Technician; Durham Technical Community College, Durham NC; October 1995 – August 1996 and December 1991 – November 1993
  Prepared chemical solutions and biological reagents for science classes using proper MSDS safety procedures. Prepared microbiological media for freshman level laboratory courses. Maintained equipment and prepared all physics apparatus for use.
- Technical Support Representative; Intersolv, Morrisville NC (bought by Merant); June 1994 – February 1995
  Assisted end-users via telephone with installation, usage, and functionality of database access software capable of connecting to over 30 database systems using ODBC drivers.