

MEENA NIMMA

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EDUCATION

Ph.D. in Applied Physics,

University of Texas at Arlington

2012

Dissertation Title: Defect Study in Transparent Conducting Oxides (TCOs)

Master of Science (M.S) in Applied Physics

University of Texas at Arlington

2007

PROFILE SUMMARY

- Fundamental research in photovoltaic materials and semiconductors, solid state physics, positron Spectroscopy, quantitative analysis using statistical and mathematical models, software engineering and teaching
- Well-developed classroom teaching competence with adolescents, teens and special populations
- Strong problem solving skills with creativity in planning and implementing
- Highly motivated and well-organized, with hands-on experience and vast educational background in Applied Physics
- Extensive knowledge of applications, integration, hardware and quality testing. Excellent communication and interpersonal skills

CORE COMPETENCIES

- Strong Leadership and Management skills to steer an organization, good work ethics with a positive motto
- Lesson Design and Development/Interdisciplinary Collaboration/Teaching
- Classroom Demonstrations and survey research/Complex data analysis and evaluating research methods
- Individual and group counseling/Program development/Assessment and planning
- Performance evaluations
- Facilitator and Coordinator for several classroom teaching and laboratory equipment

COMPUTER PROGRAMMING

- Proficient in MATLAB, LABVIEW, ORIGIN, SIGMA PLOT, MS Office(Word, Power point, Excel), Photoshop, Mathematica, Verilog, VHDL
- Programming with, C, C++, JAVA , Visual Basic, and UNIX/LINUX.

TEACHING AND ADVISING EXPERIENCE

Adjunct Faculty of Physics

Tarrant County Community College

2016-Current

- Design course structure and teach Physical Sciences for non-science majors

Richland College

2014-Current

- Design course structure for non-science majors and teach, Conceptual physics I and II, College Physics for Pre-meds and engineering students including labs, demonstrations handling design of experiments and equipment.
- Use of instructional technology to enhance pedagogical technique.
- Implementation in part with an innovative, interdisciplinary team-teaching program.

Post-Doctoral Associate

Texas Christian University in Physics and
Astronomy

2012-2013

- Planned and led research groups in Laboratory by assigning various projects.
- Assisted in writing several research grants
- Worked with students during summer to analyze the data organizing group discussions
- Provided required training sessions for new teaching assistants and research assistants.

Coordinating Group Leader

2008-2012

Materials Science and engineering University of Texas at Arlington

- Helped to mentor new students in the Engineering and Science division to ensure their engagement and academic development.
- Organized new student orientation and training opportunities to assist them in adjusting to the pace of course schedule and the tone and style of the University.

Event Leader**2007-2008**

Material Science and engineering Summer Camp Program University of Texas at Arlington

- Organized summer camps by assigning other team members in the department each topic to educate at various levels for the prospective students.

Physics Faculty Teaching Associate

University of Texas at Arlington

2004-2006

- Taught Introductory Physics-I &II course and laboratories, Electromagnetism I & II, Modern Physics courses and laboratories, Including preparing tests, assignments, quizzes and grading for undergraduate physics and engineering majors

Physics Faculty Teaching Associate

University of Rhode Island

2002 - 2003

- Taught Modern Physics and electronics labs and grading assignments and tests for undergraduate students.

University Service

Physics Clinic Mentor at University of Texas at Arlington

2004-2007**RESEARCH EXPERIENCE**

- Developed an innovative scheme to fabricate conducting oxide materials for smart window applications.
- Investigated the ways to improve solar cell efficiency of the transparent conducting oxide materials
- Engineering design and fabrication of Oxide materials used in electro-optic applications.
- Simulation of the solar cell module using the AM 1.5 light illumination.
- Optical testing of quantum dot lasers using photo luminescence with different modulation transfer functions defined analytically.
- Deposit Metallic Oxide thin films, CuO, In₂O₃, ZnO, using Thermal Evaporator, Sputtering, wet & dry oxidation furnaces, spin coating and photo lithography techniques.

- Experience using various characterization and optical testing tools, scanning electron microscope (SEM), X-ray Diffraction(XRD), Raman spectroscopy, AUGER Spectroscopy, Positron Annihilation Spectroscopy, X-ray photoelectron spectroscopy(XPS) , ellipsometry, reflection, transmission, absorption using UV-VIS spectrometer.
- Experience with ultra-high vacuum and cryogenic technologies, Inverse photoemission spectroscopy, and mass spectroscopy.

CONFERENCES AND PUBLICATIONS

- 38th PVSC_Semitransparent Photovoltaic International conference “Semi-transparent Photovoltaic Devices for Smart Window Applications”.
- “Semi-transparent ZnO:Al/Cu₂O thin-film hetero junctions fabricated at low temperature: Effect of an intrinsic ZnO buffer layer at the junction” submitted to Solar Materials
- Light-Induced metastable defects in Cu₂O Applied Physics Letters.
- Research presentation at the XIX International Materials Science Conference, August 2010,” Defect studies in p-type semiconducting Oxides”.
- Presentation talk at CAARI 2012, 22nd International conference on the Application of accelerators in Research and Industry, titled “Light-Induced metastable defects in Cu₂O”.
- Effects of sintering temperature on open -volume defects and thermos-luminescence of yttria and lutetia ceramics, Journal of the American Ceramic Society.

HONORS AND AWARDS

- Graduate College Dissertation Completion Award, University of Texas at Arlington 2012
- Campus Teaching Award based on student evaluations, University of Texas at Arlington 2006
- Doctoral Fellowship, Department of Applied Physics, 2004-2007
- Summer Research fellowship, Department of Material Sciences 2008
- Graduate College Conference Travel Grant, University of Texas Arlington, 2009 &2010

Career Advisory Committee

2009-2012

University of Texas at Arlington

- Served on university committee to evaluate and propose career services for graduate students.
- Collaborated with faculty and students to prepare final report for submission to the Graduate College Dean.

University Journal Club Advisory Committee

2008-2012

Journal Club, University of Texas at Arlington

- Advised students in writing Journals and to improve their communication skills required for conferences and presentations.

RELATED COURSEWORK

- Classical Mechanics(Newtonian Mechanics, Simple Pendulum Oscillations), Mathematical Methods I(Solving methods to Taylor Expansion series, Legendre and Bessel Polynomials) , Quantum Mechanics(Uncertainty principle ,particle in a box) I and II, Statistical Mechanics(Thermodynamics), Solid state Physics I, Electro Dynamics I and II, Computational Physics, Scanning Electron Microscopy, Fundamentals of optics(Diffraction, Interference, Refraction, wave front concepts and Geometrical optics),Fundamentals of Semiconductors, Nano photonics, Opto-Electronic Devices, Material Properties, Methods of Applied Physics II, Advanced methods in Surface Analysis, Radio Frequency Circuit Design, CMOS (bipolar) RFIC Design, Analog Circuit design, IC Fabrication.