Curriculum Vitae

P.L.Stephan Thamban

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Education

DOCTOR OF PHILOSOPHY in Physics, December 2005
The University of Texas at Dallas, Richardson, Tx
Dissertation: Beyond Band Gap Photoreflectance Study on PHEMT Device Structures
GPA: 4.0/4.0

MASTER OF SCIENCE in Physics, May 2002
The University of Texas at Dallas, Richardson, Tx
GPA: 4.0/4.0

MASTER OF SCIENCE in Physics (specialization in Electronics), April 1999
University of Madras, Chennai, India
Project work: Electric Guitar Tuner
Division: First Class

BACHELOR OF SCIENCE in Physics, April 1997
University of Madras, Chennai, India
Division: First Class

Work Experience

University of Texas at Dallas, Texas September 2007 –
Research Associate

- Conducted research pertinent to the development of a plasma diagnostic system
- Trained high-school, undergraduate students in research projects
- Coauthored an awarded NSF grant proposal with research advisor
- Teaching Engineering Mechanics course

Calvin College, Michigan September 2006 – August 2007
Assistant professor of physics

- Taught General Physics I, Introductory Physics (I & II) courses and their associated lab courses
- Taught cross cultural engagement course titled Distant "Neighbours"- who are "real" Indians?! during interim semester

Santa Fe Community College, Florida January 2006 – August 2006
Physics Adjunct Faculty

- Taught Fundamentals of Physical Science, Applied Physics I & II, Applied Physics I & II lab, Physics I & II with Calculus and Physics I & II with Calculus lab courses

The University of Texas at Dallas, Tx September 2000 – August 2005
Teaching Assistant

- Taught Mechanics, Electricity & Magnetism, General Physics, Electronics, Physical measurement (senior physics level) laboratory courses
- Assisted graduate/undergraduate students with Electricity & Magnetism, Statistical mechanics and Numerical methods courses
- Graded homework/reports related to coursework or lab-work

Lapiz Digital Services, Chennai, India January 2000 – May 2000
Technical Editor

- Copy-edit scientific journal articles

Research/Project Experience

Integrated center for advanced materials processing September 2007-
The University of Texas at Dallas

I. Optical emission spectroscopy diagnostic system development

- Working actively in a plasma electron-beam based novel OES diagnostic system development project
- Set up the high vacuum experimental bench and LabVIEW automation for measurements for the project
- Conducted studies with DC hollow cathode and inductively coupled plasma discharge sources
- Worked on electron extraction assembly development and design
- Conducting etch studies and optical excitation cross section studies with the tool

Optical Properties of Solids Research Group May 2002 – December 2005
The University of Texas at Dallas

I. Optical Characterization of Semiconductors

- Conducted research on opto-electronic properties of III-V semiconductors primarily using Photoreflectance (PR) experiment along with other optical measurements from Raman Spectroscopy, Photoluminescence (PL) and Electroreflectance (ER) experiments
- Developed the LabVIEW software to run the PR experiment
- Developed a fitting routine to fit the PR data with a theoretical lineshape model using C programming language and MATLAB
- Conducted extensive PR study on PHEMT device structures and have also studied other device structures like PIN photodiodes, HBTs and Photocathodes

II. Scanning Probe Microscopy: Atomic Force Microscope (AFM)

- Operated extensively a Topometrix TMX 2010 Discoverer AFM to image sample surfaces and collected high quality images to assess surface quality of thin films from determined surface roughness parameters
- Diagnosed and fixed sensitive alignment issues on the instrument regularly

- Taught senior undergraduate students concepts in scanning probe microscopy and have trained them to use the instrument

Center for Theoretical Interdisciplinary Physics May 2001 - April 2002
University of Texas at Dallas

Astro-particle physics research

- Worked with a simulation routine written in C programming language, Adaptive longitudinal profile simulation (ALPS), to study the two dimensional longitudinal profile of cosmic ray showers
- Performed extensive data analysis and compared results from ALPS to that from a widely used simulation, CORSIKA
- Documented program flow in various source code modules of ALPS

Department of Physics November 1998 - April 1999
Madras Christian College

Master's Electronics Project

- Designed and developed an electronic device with analog and digital circuits to analyze the periodicity of the signal from the pick-up unit of an electric guitar

Computer Skills/ Other Training

- Strong programming skills in C, C++ programming languages and in MATLAB and LabVIEW
- Underwent a semester-long training to work in University machine shop

Patent (pending)

"Electron beam exciter for use in chemical analysis in processing systems", Pub. No. 2010/US0032587, Attorney docket number 946959600042, (July 2009)

Publications

"Controllable optical emission spectroscopy diagnostic system for analysis of process chemistries", P.L.S. Thamban, J. Hosch, M. J. Goeckner, *Rev. Sci. Instrum.* **81**, 013502 (2010)

"Correlation between E_1 transition broadening and carrier mobility in the channel layer of pseudomorphic high electron mobility transistor epistructures", P.L.S. Thamban, P. Pinsukanjana, R. Glosser, *J. Mat. Sci: Mat. Electronics* **18**, 439 (2007)

"Ultra low background InGaAs Epi-layer on InP for PIN applications by production MBE", X. Jin, P. Pinsukanjana, J. Pepper, G. He, P. Partyka, M. Le, H. Zhu, C. Boehme, B. Barnes, J. Marquis, P.L.S. Thamban, R. Glosser, J. Kuo, K. Vargason, Y. Kao, 16th IPRM (IEEE Cat. No.04CH37589), p. 48-51, (2004)

"Comparison of the optical characteristics of GaAs photocathodes grown using MBE and MOVCD", L.E. Bourree, D.R. Chasse, P.L.S. Thamban, R. Glosser, *Proceedings of the SPIE* **4796**, 11 (2003)

"MBE-grown InGaAs Photocathodes", L.E. Bourree, D.R. Chasse, P.L.S. Thamban, R. Glosser, *Proceedings of the SPIE* **4796**, 1 (2003)

References

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