Curriculum Vitae

Jianchao Li, Ph.D.

EDUCATION BACKGROUND

May 08-Aug.09 Postdoctoral research associate, Department of Electrical and Computer Engineering University of North Carolina at Charlotte, **Advisor**(distinguish professor)**: Raphael Tsu**

May 02-Dec 06 University of Nebraska-Lincoln. Doctorate of Philosophy in Electrical Engineering.

Sept 99-May 02 Beijing University of Technology (Beijing Polytechnic University), China. Masters of Science in Material Science and Engineering

Sept 95-Sept 99 Hebei University, China. Bachelor of Science in Applied Optics, Physics.

RESEARCH & WORK EXPERIENCE

April 11-Present Nanofabrication Facilities Manager, University of North Texas.

Oversee the safe and efficient operation of the UNT Cleanroom. Supervise and coach the UNT cleanroom technical staff. Assign responsibilities for the UNT cleanroom staff to maintain high levels of equipment availability, process stability and process performance. Establish UNT cleanroom operation policies/procedures for safe and efficient operation of the center. Provide input on future equipment purchases and coordinate new equipment installations. Provide support as needed with processing, equipment maintenance, and training. Coordinate all safety issues and be the primary interface with University RMS. Serve as a member of the UNT cleanroom emergency response team in a leadership role. Oversee the UNT cleanroom user training program and interface with users as needed. Oversee authorship, review and use of all documentation associated with UNT cleanroom including periodic updates, SOPs, and annual reports. Responsible for equipment logs and monthly user billing information. Oversee and review UNT cleanroom charge rates. Oversee ordering of UNT cleanroom gases, chemicals, garments, materials, equipment and supplies. Maintain UNT cleanroom inventory and surplus equipment as needed. Oversee the UNT cleanroom website and update and maintain its content. Assist with content for UNT cleanroom brochures and newsletters. Participate in developing strategies to enhance the UNT cleanroom and increase its usage and productivity, including participation in infrastructure grants.

July10-April 11 Associate Development Engineer, University of California-Riverside.

Provides assistance to the Microelectronics Director in the operation and maintenance of the Instructional Clean Room which includes: Trains/teaches the core courses and workshops included in the contract with the San Bernardino Community College District Nanotechnology Training Center. Design and prepare engineering plans and specifications for novel laboratory equipment and instruments; coordinates construction, assembly, lab and field testing of equipment and instruments; and participates in the engineering and mathematical analysis of experimental data or in the mathematical solution of physical and engineering problems.

Technical support and troubleshooting for wet and dry etching systems, chemical vapor deposition systems, photolithographic mask aligners, thin-film deposition systems, and misc. metrology tools. Supports equipment maintenance to include; pumps, motors, compressors, power supplies, gas supply systems, DI water systems, chilled water systems, high vacuum systems and control systems. Responds to campus requests for inspection and/or emergency repairs clean room environmental control and safety systems. Updates operating data in computer logs and paper records.

May 09-June10 Chair, School of Electronic Technology, ITT- Tech Institute, Charlotte North Campus.

Manages programs and instructional staff within the school of study. Ensures proper instruction and delivery of curricula, and ensures that the learning environment meets the curricula requirements. Communicates performance expectations to instructional staff, monitors performance (including conducting classroom observations), analyzes key performance indicators, provides coaching and feedback, evaluates performance and recommends corrective actions. Facilitates faculty concern resolution. Assists Dean in the creation of academic goals and objectives for the campuses' Institutional Effectiveness Plan. Develops and coaches faculty in the achievement of goals and objectives. Serves as curriculum resource for students and faculty. Maintains teaching assignment as scheduled. Promotes student enrollment growth in assigned school of study by participating in the campuses' re-entry program, implementing retention initiatives, attending campus events, and involvement in community and professional organizations and events.

May.08-Augst.09 Postdoctoral research associate, Quantum Device Advanced microelectronic material laboratory (University of North Carolina at Charlotte).

Lead researcher for fabricating III-V, V-V semiconductor thin film material by employing state-of-art brand new SVTA MBE system. Also responsible for thin film nanoscale analysis using SEM, XRD, AFM etc.

Nov. 2006- Apri. 2008 Senior Engineer, Front Edge Technology.

Lead R&D senior engineer for the research and development of, next generation of lithium batteries for portable electronic applications, solid-state lithium thin film battery process including magnetron sputtering deposition and evaporation for cathode, electrolyte, and anode materials and UV pulse laser, ultrafast pulse laser micromachining on thin film lithium batteries and micro-scale thin film battery device.

May 02-Dec 06 Research Assistant, Center for Electro-Optics (University of Nebraska-Lincoln).
Lead researcher for ultrafast laser pulses interacts with matter such as water, aerosol (Sponsored by Defense Advanced Research Project Agency http://excimer.unl.edu/) femtosecond laser nanomaching, laser induced breakdown spectroscopy (LIBS) and diffraction characteristics of ultrashort pulses illumination on various objects.

Sept 99-May 02 Research Assistant, The Key Laboratory of Advanced Functional Materials, Ministry of Education, (Beijing University of Technology, China).

Lead Researcher for developing and studying the method of preparing nanocrystalline semiconductor thin films by chemical vapor deposition and physical vapor deposition. Major research project involved in studying the growth mechanism of nanocrystalline β-SiC thin films fabricated by Catalytic-CVD.

TEACHING EXPERIENCE

July 10- Present University of California at riverside, San Bernardino Community College professional development center: Nanotechnology technician workshop

Introduction to Electronic Devices, Introduction to Optoelectronic Devices, Introduction to Micro\Nano Fabrication, Introduction to Nano Characterization, Introduction to Material Characterization, Introduction to Device Characterization

Sep. 09-June. 10 ITT Technical Institute, Chair of Electronics Technology:
DC Electronics, AC Electronics, Electronic Devices I, II, Digital Electronics, Communication system

Jan 05-Jan 06 University of Nebraska-Lincoln
Teaching assistant:
Electromagnetic Field Theory, Dr. Paul G. Snyder and Dr. Dennis R. Alexander, Department of Electrical Engineering

Jan 06- May 06 University of Nebraska-Lincoln
Teaching assistant:
Electronics & Circuits, Dr. Mark Bauer, Department of Electrical Engineering

August 2004 - Nov. 2006 Chinese Language & Cultural Exchange Association

Teaching the Chinese Language Class

TECHNICAL STRENGTHS

- Mastering state-of-art brand new SVTA 35-N-V MBE system for depositing high quality AlN, GaN, SiC epitaxial layers while using in-situ RHEED. Experience with vary temperature photoluminescence (PL) and Raman spectroscopy.
- Strong Experience on surface characterization and analysis skills using various tools, including XRD (*PANalysis* X' Pert PRO), FTIR (Thermo Nicolet NEXUS), AFM (Veeco, Diemension 3100), JEOL SEM & EDS, Alpha Step Surface Profiler and Woollam Spectroscopic Ellipsometer.
- Solid background in catalytic chemical vapor deposition of nanocrystalline β -SiC, Si and BN and magnetron sputtering for depositing lithium thin film battery materials, including $LiCoO_2$, LiPON, Pt, Cu and Li.
- Extensive experience in varied thin film deposition system, Magnetron Sputtering, Cat-CVD, PECVD, Cryogenics and clean room work experience (class 100).
- UV pulse laser (Hawk, Qutronix), femtosecond pulse laser (spitfire, spectra-physics) micromachining on different materials, including Si, Mica, and thin film lithium.
- Extensive experience in Femtosource (9 fs), Spitfire (50 fs) and Tsunami (150 fs) femtosecond laser systems. Ultrafast laser pulse measurement systems like FROG, auotcorralator, spectrometer, beam profiler. Ultrafast laser micromachining system including nanomovers, lens, streak and CCD camera.

SELECTED REFERED PUBLICATIONS

PATENTS,

Raphael Tsu, **Jianchao Li**, Paolo Batoni, John Hudak, **"Columnar structured large area –silicon carbide for implementation of power electronics"-**U.S. patent, (filed)

Kai-Wei Nieh, **Jianchao Li**, Sandeep Makhar, **"Thin film battery substrate cutting and fabrication process"** –IPC8 Class:AH01M482FI, USPC Class: 296235

Kai-wei Nieh, **Jianchao Li**, Tung-Hsiu shih, **"Thin film battery fabrication using laser shaping"** –IPC8 Class:AC23C1428FI, USPC Class:427596

Victor Krasnov, Kai-Wei Nieh, **Jianchao Li**, **"Thin film battery and manufacturing method"** –IPC8 Class:AH01M600FI, USPC Class: 429220

PAPERS,

"Synthesis and characterization of 4H-SiC on C-plane sapphire by C_{60} and Si molecular beam epitaxy" JianChao Li, Paolo Batoni, Raphael Tsu, *Thin Solid Film*, *Vol.518, Issue 6, pp 1658-1660, 2010*

"Deposition of 4H-SiC On C-plane Sapphire Using C_{60}" Jianchao Li, Paolo Batoni,

Raphael Tsu, *216th ECS conference, State-of-the-art Program on Compound Semiconductor Materials and Devices, Vol. 25Issue 12, , pp 105-109 (2009)*

"Propagation of ultrashort laser pulses through water" JianChao Li, Dennis R. Alexander, HaiFeng Zhang,Ufuk Parali, David W. Doerr,John C. Bruce, and Hao Wang *Optics Express, Vol. 15, Issue 4, pp. 1939-1945 (2007)*

"Diffraction characteristics of 10 femtosecond laser pulses passing through an aperture" JianChao Li, HaiFeng Zhang, Dennis R. Alexander, David W. Doerr, Nageswara Rao. Tadepalli. *J. Opt. Soc. Am. A. 22, 1304-1310, (2005)*

"Diffraction characteristics of a Fresnel zone plate illuminated by 10 femtosecond laser pulses" HaiFeng Zhang, **JianChao Li**, Dennis R. Alexander, David W. Doerr. *Appl. Opt. Vol. 45, pp. 8541-8546 (2006)*

"Experimental observation of diffraction of ultrashort laser pulses by a single slit" Haifeng Zhang, **Jianchao Li**, Dennis R. Alexander, Dave Doerr, and Nageswara Rao Tadepalli. *Proc. SPIE 6103, 610318 (2006)*

"**Femtosecond Pulse Stretching in Microscope Objectives used for Micro/nanomachining**," N. Rao T., D. Alexander, D. Doerr, **J. Li**, H. Zhang, Journal of Laser Applications, 17, (4), 2005.

"Femtosecond pulse stretching in microscope objectives used for micro/nanomachining" N. R. Tadepalli, D. R. Alexander, D. W. Doerr, **J. C. Li,** and H. F. Zhang, *J. Laser Appl.17, 270-272 (2005)*

"Fabrication of hemispherical cavity arrays on silicon substrates using laser-assisted nanoimprinting of self-assembled particles" L P Li, Y F Lu, D.W. Doerr, D R Alexander, J Shi and **J C Li,** *Nanotechnology 15, 333–336, (2004)*

"Parameters determining crystallinity in β-SiC thin films prepared by catalytic chemical vapor deposition" Q. Zhao, **J. C. Li**, H. Zhou, H. Wang, B. Wang and H. Yan, *Journal of Crystal Growth, 260, 176-180 (2004)*

"Nanocrystalline β-SiC films grown on carbonized Si substrate by Cat-CVD" Q. Zhao, B. Wang, **J. C. Li**, M. Wang, X. M. Song, H. Wang and H. Yan, *Diamond and Related Materials, 12, 1505-1509 (2003)*

"Nanosized β-SiC films prepared by a Cat-CVD with negative bias at low substrate temperature" B. Wang, Q. Zhao, **J.C. Li**, B.B. Wang, X.M. Song, X.D. Yang, H. Yan, M. Wang, *Applied Surface Science, 217, 314 (2003)*

TECHNICAL REPORTS

May 02-Dec 06 Ph.D dissertation,
"**Temporal and spectral characteristics of ultrashort pulsed beam interact with**

matter" Department of Electrical Engineering, University of Nebraska-Lincoln

Sept 99-May 02 M.S. Thesis,
"**Structure and characteristic of nanocrystalline β-SiC films prepared by catalytic chemical vapor deposition at low temperature**" Department of Material Science and Engineering, Beijing University of Technology (Beijing Polytechnic University), China