Kamran Keramatnejad

- **Office Address:** W145-G, Nebraska Hall, Department of Electrical and Computer Engineering, University of Nebraska-Lincoln City campus, Lincoln, NE68588-0511.
- **Email Address:** k.keramatnejad@huskers.unl.edu
- **Website:** http://lane.unl.edu/users/kamran-keramatnejad
- **Cell phone:** 402-540-0472.

I. Professional objective

Seeking position as an assistant professor to utilize my teaching experience and research skills in the field of "Applied Physics" for educating and mentoring the students and helping them become the next generation of enthusiastic scientists and engineers.

II. Education

➢ **PhD Electrical Engineering (GPA: 3.9/4.00)**
University of Nebraska-Lincoln (UNL), Lincoln, NE, USA …… Aug 2013 - Present

➢ **MSc Applied Micro Electronics (GPA: 17/20 Among the top 5 students in graduate major)**
Amirkabir University of Technology (AUT), Tehran, Iran …… Sep 2010 - May 2013

➢ **BSc Electrical Engineering (Electronics) (GPA: 17/20 Top 4% in the students' GPAs in university)**
Isfahan University of Technology (IUT), Isfahan, Iran …… Sep 2006 - Sep 2010

III. Employment experience

A. Academia

➢ ***Research Assistant:***

Dept of Electrical and Computer Engineering, UNL …… 2013 - Present
- Developed laser-based implantation method to fabricate CNT-coated copper conductors with superior high-frequency electrical properties.
- Designed and developed a laser-Assisted Nanowelding technique to improve graphene-metal interfacial properties and electrical performance in graphene devices.
- Developed and fabricated CNT-implanted conductors to reduce the arcing in electromechanical devices.

➢ ***Teaching Assistant:***

1. Dept of Electrical and Computer Engineering, UNL …… 2014 - 2015
- Introductory Electrical Laboratory
- Electronic & Electrical Circuits III
- Electromagnetic fields Theory
- Lasers & Laser Applications

2. Dept of Electrical Engineering, AUT…… 2011 - 2012
- Engineering Mathematics
- Semiconductor Devices I

3. Dept of Electrical and Computer Engineering, IUT …… 2011 - 2012
- Fundamentals of Computer Programming
- Fundamental of Electrical Engineering

➢ ***Course Lecturer:***

Dept of Electrical Engineering, AUT …… 2012 - 2013
- Semiconductor Devices I
- Theory and Technology of Fabrication of Semiconductor Devices

➢ ***Research Instructor:***

Nebraska Center for Materials and Nanoscience …… Summer 2014
- Supervised high school students summer program.

B. Industry and University (Extracurricular)

➢ ***Short projects funded by industry:***

Conductix Wampfler, Inc …… Mar 2015 - Dec 2015
- Arc reduction in 3rd rail systems *via* dividing and weakening the discharge current into harmless magnitudes through CNT channels:
  - Formation of micro-hole grids on the surface of the stainless steel rails *via* femtosecond laser drilling.
  - Formation of CNT current channels *via* implanting CNTs on the laser-drilled micro-holes.

➢ ***Lab Specialist:***

Semiconductors Laboratory, AUT …… Sep 2010 - Aug 2013
- Designed and developed industrial gas sensors and optical detectors according to costumers' requirements.

➢ ***Maintenance Supervisor:***

DMD Inc: Cutting/abrasion division …… Nov 2010 - Aug 2013
- Implemented CO_2 laser cutting systems for various metal based manufacturing and molding applications.

➢ ***R&D Engineer (internship):***

RAAD Inc …… Jul 2008 - Sep 2008

- Worked on LED pilot lights power improvement and power contactors for massive manufacturing. Also edited and published catalogue for these products in English.

IV. Qualifications and Skills

A. Selected Research Skills

- Design and fabrication of novel devices with Carbon-based nanomaterials for achieving superior electrical properties.
- Laser-processing of low-dimensional materials.
- Femtosecond laser drilling of metals.
- Laser-assisted growth of thin films.
- Porous silicon-based UV detectors.

B. Laboratory and Instrumentation

- Design and development of laser-processing experiments: CW/pulsed Lasers, 3D scanners, and optical path.
- Micro-fabrication: Lithography, Sputtering, CVD/MOCVD/LMOCVD. EPD, RTP.
- Optical sensors.
- Structural characterization: SEM, AFM, Raman, XRD, surface profiler, optical microscope.
- Electrical characterization: four-point probe/two-point probe, I-V, S-parameters, AC resistance/reactance.

C. Computer and Programming

- Labview for controlling the movement of 3D/Galvo scanners in laser-processing setups.
- Experience in Matlab, Solidworks, Sisotools, Silvaco, H-spice, and ADS.

V. Honors and Awards

- **Graduate Student Conference Travel Grant,** College of Engineering, University of Nebraska-Lincoln. …..... Dec 2016
- **Student paper Award (3rd place),** ICALEO 2015 conference, Atlanta, GA. ……...……. Oct 2015
- **Milton E. Mohr Graduate Fellowship,** College of Engineering, University of Nebraska-Lincoln. ……... Sep 2015- Sept 2016
- **Research Assistantship, National Science Foundation (NSF),** Dept of Electrical and Computer Engineering, University of Nebraska-Lincoln. ……..…….…….. Aug 2013-present
- **Ranked 213th (top 0.03%)** among more than 700,000 participants in nationwide Undergraduate Entrance Exam of Universities in mathematics-physics branch. ……..……...……..….. Aug 2006
- **Ranked 99th (top 0.2%)** among 42000 participants in nationwide Graduate Entrance Exam in Electrical Engineering. ……. May 2010

VI. Publications

A. Journal Articles

1. K. Keramatnejad, S. Zhou, D. W. Li, H. Rabiee Golgir, X. Huang, Q. M. Zhou, J. F. Song, S. Ducharme, Y. F. Lu, "*Laser-Assisted Nanowelding of Graphene to Metals: An Optical Approach Toward Ultralow Contact Resistance*", Submitted to Journal of Advanced Materials Interfaces.

2. K. Keramatnejad, Y. Gao, Y. S. Zhou, H. Rabiee Golgir, M. Wang, L. Jiang, J.-F. Silvain, Y. F. Lu, "*Skin effect mitigation in laser processed multi-walled Carbon nanotubes/Cu conductors*", Journal of Applied Physics 118.15 (2015): 154311.

3. H. Rabiee Golgir, Y. S. Zhou, **K. Keramatnejad,** W. Xiong, D. Li, M. Wang, L. Jiang, X. Huang, L. j. Jiang, J.-F Silvain, J. François, Y. F. Lu, "*Resonant and nonresonant vibrational excitation of ammonia molecules in the growth of gallium nitride laser-assisted organic chemical vapor deposition*", Journal of Applied Physics 120.10 (2016): 105303.

4. H. Rabiee Golgir, Y. Gao, Y. S. Zhou, L. Fan, P, Thirugnanam, **K. Keramatnejad**, L. Jiang, J. F. Silvain, Y. F. Lu, "*Low-Tempreture Growth of Crystalline Gallium Nitride Films Using Vibrational Excitation of Ammonia Molecules in Laser-Assisted Metalorganic Chemical Vapor Deposition*", Journal of Crystal growth Design 14.12 (2014): 6248-6253.

5. K. Keramatnejad, F. Khorramshahi, E. Asl-Soleimani, "*Optimizing UV detection properties of n-ZnO NW/p-Si heterojunction photodetectors by using a porous substrate*", Journal of optical and quantum electronics 47.7 (2015): 1739-1749.

B. Conference presentations:

1. K. Keramatnejad, Y. Gao, Y. S. Zhou, H. Rabiee Golgir, M. Wang, Y. F. Lu, "*Skin Effect Suppression in Infrared-laser Irradiated Planar Multi-walled Carbon Nanotube/ Cu Conductors"*, ICALEO Conference Proceedings, Atlanta, GA (2015).

2. K. Keramatnejad, S. Khatami, F. Raissi, F. Khorramashahi, "*Highly sensitive PtSi/Si UV detector with high selectivity*", Micro and Nanoelectronics (RSM) regional Symposium on. IEEE, Langkawi, Malaysia (2013): 194-196.

VII. Activities

A. Voluntary work

- **Private tutoring (**undergraduate level mathematics, physics, chemistry**)**
- **Community service at University Lutheran chapel.**
- **Volunteer judge for high school science fair.**

B. Hobbies

- **Working out.**
- **Participating in dancing lessons.**
- **Studying 20th century history.**

VIII. References Available on Request