

## Jianjun Wei, PHD

Associate Professor in Nanoscience  
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### EDUCATION

2005 - 2005 Postdoctoral Research Associate in Chemistry, University of Pittsburgh, PA, USA  
2000 - 2004 Ph.D., Chemistry, University of Pittsburgh, Pittsburgh, PA, USA  
1992 - 1995 M.S., Applied Chemistry  
East China University of Science & Technology (ECUST), Shanghai, China  
1988 - 1992 B.S., Applied Chemistry  
East China University of Chemical Technologies, Shanghai, China

### APPOINTMENT

9.2013-Present Associate Professor, the Department of Nanoscience, Joint School of Nanoscience and Nanoengineering (JSNN), UNC Greensboro, NC  
8.2014-Present Adjunct Professor, the Department of Nanoengineering, Joint School of Nanoscience and Nanoengineering (JSNN), UNC Greensboro, NC  
1.2010-8. 2013 Principal Scientist, Biomedical and Energy Technology, CFD Research Corporation, Huntsville, AL  
1.2006-12. 2010 Senior Scientist/Research Scientist, Biomedical and Energy Technology  
CFD Research Corporation, Huntsville, AL  
9.2000-12.2004 Teaching & Research Assistant, Andrew Mellon Predoctoral Research Fellow in Chemistry, University of Pittsburgh, Pittsburgh, PA,  
8.1995-7.2000 Lecturer, Researcher. Department of Environmental Science and Engineering,  
Shanghai University, Shanghai, China

### HONORS & AWARDS

- 2016: UNCG Faculty First Scholarship Award
- 2013: NASA Technical Innovation Brief Award: LEW-18967-1
- 2008: The US DOD SBIR Achievement Award (DoD SBIR Phase II)
- 2003-2004: Andrew Mellon Predoctoral fellowship, University of Pittsburgh
- 2003: Travel Grant Award from Electrochemical Society for the 204th National Meeting, Orlando, FL
- 2002: Wallace Prize; Outstanding Poster Presentation, Dept. of Chemistry and Industrial Committee, University of Pittsburgh

### RESEARCH INTEREST

Advanced functional materials, nanostructures and nanomaterials, fundamental studies in electron transfer, light-matter interactions (e.g. surface plasmon resonance SPR, SERS), and applications in biosensors & bioelectronics, biomedicine, energy and environments by employing methods of materials synthesis, nanofabrication, electrochemistry, microscopy and spectroscopy, modeling and simulation.

**RESEARCH GRANT****After Joining JSNN/UNCG**

- 2015-2018 US NSF #1511194, \$306,001, “A Versatile Nano-Optofluidic Platform for Multiplexed Detection of Cardiac Biomarkers in Blood”, **PI**
- 2016-2019 US NIH/R15 award \$455,243, PI (Jia-Biology), Co-PIs (Chiu and Wei), “Novel Carbon Nanodots against Vascular Inflammation”, **Co-PI**.
- 2017-2018 Strategic Seed Grant Awards of UNCG, \$25,000, “New Upconversion Nanoparticles for Photodynamic Cancer Therapy” **Co-PI**
- 2016-2017 UNCG Research Award, \$5,000, “A bio-chip to monitor biomarkers in saliva for organ toxicity/failure”, **PI**
- 2014-2015 A chip-based nanoplasmonics biosensor for proteins, Gateway Research Park, Greensboro, NC, NIC seed fund, \$5000, **PI**

**Before Joining JSNN/UNCG (a total > \$4M, as PI: >\$1.4M)**

- 2012-2013: “Developing A Point-of-Care Electrochemical Detector for Reagent-free detection of Pathogens”, NASA/STTR Phase I, \$125,000, NNX12CG02P, **PI**
- 2012-2012 “Piezo-nanomaterials for Harvesting Radiative Energy for a High-Efficiency Portable Battery Charger/Storage Unit”, DoD SBIR Phase I, \$100,000, W911QY-12-P-0077, **PI**
- 2011-2012 “Carbon Nanotube-Piezoelectric Film for Harvesting Multiple Ambient Energy Sources”, DoD/Navy, SBIR Phase I, \$100,000, Contract: N68335-11-C-0496, **PI**
- 2010-2011 “A Nanofluidic Nanoplasmonic Platform for Multiplexing Detection of Cancer Biomarkers”, NIH/NCI SBIR: \$180,000; Contract: 1R43CA153899-01, **PI**
- 2010-2012 “Novel MicroPower Source for Insect Based Sensor and Communication.” DOD SBIR Phase II: \$780,000; Contract: W911NF-10-C-0055, **Co-PI**
- 2009-2012 “Nanoelectrokinetic, Label-free Sensor for Toxic Industrial Chemical Detection DOD SBIR Phase II: \$750,000, Contract: W31P4Q-09-C-0560, **Co-PI**
- 2009-2011 “An On-Chip Nano-plasmonics Based Urine Protein Assay Cartridge.” NASA, STTR Phase II, \$600,000; Contract: NNX09CB64C, **PI**
- 2009-2010 “A Piezoelectric Power Chip for Opportunistic Energy Harvesting on Submarines.” DoD/NAVY SBIR Phase I, \$100,000; Contract: N65538-10-M-0067, **PI**
- 2009-2009 “MicroPower Source for Insect Based Sensor and Communication Platforms.” DOD SBIR Phase I: \$70,000; Contract: W911NF-09-C-0068, **Co-PI**
- 2008-2009 “Near-Infrared Nanopolymer Agents for Imaging of Tumor Margins.” NIH/NCI SBIR Phase I: \$100,000; Contract: 1R43CA134039-01, **PI**
- 2008-2009 “An On-Chip Nano-plasmonics Based Urine Protein Assay Cartridge.” NASA, STTR Phase I, \$100,000; Contract: NNX08CCD36P, **PI**
- 2006-2009 “Nanocomposite Enzymatic Electrode in Bio-Battery Platform for Energy Conversion.” DOD Phase IIIA: \$1,040,000; Contract: W15P7T-06-CT203, **Co-PI (tech Lead)**

**PUBLICATIONS****Peer-reviewed Articles (\*Corresponding Authors)****After Joining JSNN/UNCG****Manuscripts under revision/review or submitted**

1. Z. Zeng, W. Zhang, D. Arvapalli, B. Bloom, A. Sheardy, T. Mabe, Y. Liu, Z. Ji, H. Chevva, D. Waldeck, **J. Wei**,\* A Fluorescence-Electrochemical Study of Carbon Nanodots (CNDs) for Bio- and

- Photoelectronic Application and Energy Gap Investigation, *Physical Chemistry and Chemical Physics (PCCP)*, **2017**, *under revision*
- A. D. Covell, Z. Zeng, T. Mabe, **J. Wei**\*, A. Adamson, D. LaJeunesse,\* Alternative SiO<sub>2</sub> surface energies direct MCDK epithelial behavior, *ACS Biomaterials Science & Engineering*, **2017**, *under revision*.
  - W. Zhang, Z. Zeng, **J. Wei**\*, An Electrochemical DPPH• Scavenging Study for Evaluating the Antioxidant Capacity of Carbon Nanodots (CNDs), **2017**, *submitted*.
  - A. Aboagye, Y. Liu, J. Ryan, **J. Wei**\*, L. Zhang,\* Hierarchical Carbon Electrode Nanomaterial for High-Performance Supercapacitor with Alkali Aqueous Electrolyte. **2017**, *submitted*.
  - Y. Liu, Z. Zeng, B. Bloom, D. Waldeck, **J. Wei**\*, Stable Low-current Electrodeposition of  $\alpha$ -MnO<sub>2</sub> on Super-aligned Electrospun Carbon Nanofibers for High-performance Energy Storage, **2017**, *submitted*.

#### Published or Accepted

- Z. Zeng, Y. Liu, W. Zhang, H. Chevva, **J. Wei**\*, Improved Supercapacitor Performance of MnO<sub>2</sub>-Electrospun Carbon Nanofibers Electrodes by mT Magnetic Field, *Journal of Power Sources*, **2017**, 358, 22-28, DOI: 10.1016/j.jpowsour.2017.05.008.
- Z. Zeng, X. Shi, T. Mabe, S. Christie, G. Gilmore, A. Smith,\* **J. Wei**\*, Protein Trapping in Plasmonic Nanoslit and Nanoledge Cavities: The Behavior and Sensing, *Analytical Chemistry*, **2017**, 89 (10), 5221–5229. DOI: 10.1021/acs.analchem.6b04493
- S. Kaye, Z. Zeng, M. Sanders, K. Chittur, P. Koelle, R. Lindquist, U. Manne, Y. Lin, **J. Wei**\*, Label Free Detection of DNA Hybridization with A Compact LSPR-based Fiber-Optic Sensor, *The Analyst*, **2017**, 142, 1974-1981. DOI: 10.1039/C7AN00249A.
- H. Chevva, R. Chandran, D. LaJeunesse, **J. Wei**\*, Silver Nanowires (AgNWs) Growth in-situ on Chitosan Polymer Matrix Film for SERS Application, *Proceedings of 17th IEEE International Conference on Nanotech.* **2017**, Accepted
- P. Lu, W. Wen, Y. Huang, Z. Zeng,\* **J. Wei**\*, New insight into advection of organic contaminate plume at drain outlet areas, *Environmental Nanotechnology, Monitoring & Management*, **2016**, 6, 76-82.
- Y. Xu, Z. Li,\* F. Zhang, X. Zhuang,\* Z. Zeng, **J. Wei**\*, New nitrogen-rich azo-bridged porphyrin conjugated microporous networks for high performance of gas capture and storage, *RSC Advances*, **2016**, 6 (36), 30048-30055, DOI: 10.1039/C6RA04077B.
- Y. Liu, Z. Zeng, **J. Wei**\*, Frontiers in nano-architected carbon–metal oxide electrodes for supercapacitance energy storage, *Front Nanosci Nanotech*, **2016**, 2, 78-85, doi: 10.15761/FNN.1000113.
- Z. Zeng, M.N. Mendis, D.H. Waldeck, **J. Wei**\*, A semi-analytical decomposition analysis of surface plasmon generation and the optimal nanoledge plasmonic device, *RSC Advances*, **2016**, 6, 17196 – 17203, DOI: 10.1039/C6RA01105E.
- Z. Zeng, Y. Liu, **J. Wei**\*, Recent advances in surface enhanced Raman spectroscopy (SERS): finite difference time domain (FDTD) method for SERS and sensing applications. *Trend in Analytical Chemistry*. **2016**, 75, 162–173.
- Y. Liu, T. D. Dolidze, S. Singhal, D. E. Khoshtariya, **J. Wei**\*, New evidence for a quasi-simultaneous proton-coupled two-electron transfer and direct wiring for glucose oxidase captured by the carbon nanotube-polymer matrix. *Journal of Physical Chemistry C*. **2015**, 119 (27), 14900–14910.
- M. Sanders, Y. Lin\*, **J. Wei**\*, T. Bono, R. Lindquist, An enhanced LSPR fiber-optic nanoprobe for ultrasensitive detection of protein biomarkers, *Biosensors and Bioelectronics*, **2014**, 61, 95-101.  
**Note:** Listed as ScienceDirect's 10 most downloaded Chemistry articles published since 1 January 2014 by authors based in the US by 2015.
- J. Wei**\*, M. Kofke, S. Singhal, D.H. Waldeck, A study of localized surface plasmon resonance nanoslit array and applications for chip-based protein detection, *JSM Nanotechnology and Nanomedicine*, **2014**, 2(2): 1024.
- Li Z.\*, J. Zhang, et al and **J. Wei**\*, A Nanocomposite of copper (II) functionalized graphene and application for sensing sulfurated organophosphorus pesticides, *New Journal of Chemistry*, **2013**, 37 (12), 3956 – 3963.

**Before Joining JSNN/UNCG**

19. S. Zhu, J. Zhang, G. Vegesna, A. Tiwari, F-T. Luo, H. Li, **J. Wei\*** and H. Y. Liu\*, Highly water-soluble, near-infrared emissive copolymeric BODIPY dye bearing RGD peptide residues for cancer imaging, *Analytica Chimica Acta*, **2013**, 758, 138–144.
20. T. H. Zhang; Y. He; **J. Wei**; L. Que, Nanostructured optical microchips for cancer biomarker detection, *Biosensors and Bioelectronics*, **2012**, 38, 382-388.
21. X. Shi, Z. Li, X. Ge, C. Yang, B. Fang, **J. Wei**, H. Xie, K. Zhang, X. An and Ch. Qin, “Water-soluble noncovalently engineered graphene-neutral red nanocomposite with photocurrent generating capacity,” *J. of Nanoscience and Nanotechnology*, **2012**, 12, 1792-1798
22. Z. Li, X.J. Shi, X.P. Ge, **J. Wei**, C. Z. Yang, B. Fang, H. F. Xie, X. C. An, “Electron interaction among the noncovalently engineered graphene-methylene blue nanocomposites” *Chemical Research In Chinese Universities*, **2012**, 28 (3) 520-523.
23. **J. Wei\***, M. Kofke, M. Mendis, H. Song, S. Singhal, DH. Waldeck\*, An In-Plane Nanofluidic Nanoplasmonics-Based Platform for Biodetection, *Proceedings of the ASME 2012 3rd Micro/Nanoscale Heat & Mass Transfer International Conference*, MNHMT**2012**, 1-7
24. **J. Wei\***, M. Rexius, M. Kofke, Y. Wang, S. Singhal, D. H. Waldeck, Nano-plasmonics sensing and integration with microfluidics for a lab-on-chip biosensor, *Nanotech.* **2011**, 3, 79-82
25. **J. Wei\***, M. Kofke, S. Singhal, and D. H. Waldeck, “Transmission SPR of Gold Nanoslit and Ultrasensitive Detection of Proteins”, *IEEE Xplore*, **2010**, 1-4.
26. V. Kotipalli, Z. Gong; Y. He; S. Yadav; S. Penmetsa, **J. Wei**, L. Que, “Carbon nanotube film-based cantilever for light and thermal energy harvesting”, *Sensors, IEEE*, **2010**, 1165 – 1168.
27. **J. Wei**, G. Bird, C. Schafmeister, A. Paul, and D. H. Waldeck, “Molecular chirality and charge transfer through self-assembled scaffold monolayers”. *J. of Physical Chemistry B.*; **2006**; 110(3); 1301-1308.
28. **J. Wei**, H.Y. Liu, K. Niki, E. Margoliash, and D. H. Waldeck, “Probing electron transfer pathway of cytochrome c and its mutant immobilized at surface” *Journal of Physical Chemistry B*, **2004**, 108, 16912-16917.
29. D. Murgida, **J. Wei**, P. Hildebrandt, Y. F. He, H. Y. Liu, and D. H. Waldeck, “SERR and Electrochemical Study of Cytochrome c Bound on Electrodes through Coordination with Pyridinyl-terminated SAMs” *Journal of Physical Chemistry B*, **2004**, 108, 2261-2269.
30. D. E. Khoshtariya, **J. Wei**, H. Y. Liu, H. J. Yue, and D. H. Waldeck, “The Charge-Transfer Mechanism for Cytochrome C Adsorbed on Nanometer Thick Films. Distinguishing Frictional Control from Conformational Gating” *J. of American Chemical Society*, **2003**, 125, 7704-7714.
31. H. Y. Liu, H. Yamamoto, **J. Wei**, and D. H. Waldeck, “Control of the Electron Transfer Rate between Cytochrome c and Gold Electrodes by the Manipulation of the Electrode's Hydrogen Bonding Character” *Langmuir*, **2003**, 19(6), 2378-2387.
32. **J. Wei**, H. Y. Liu, D. E. Khoshtariya, H. Yamamoto, and D. H. Waldeck, “Electron Transfer Dynamics of Cytochrome C. A Change in the Reaction Mechanism with Distance”. *Angewandte Chemie International Edition*, **2002**, 41 (24), 4700-4703.
33. **J. Wei**, H. Y. Liu, A. R. Dick, H Yamamoto, Y. F. He, and D. H. Waldeck, “Direct wiring of cytochrome c's heme unit to an electrode: Electrochemical studies”, *Journal of American Chemical Society*, **2002**, 124 (32), 9591-9599.
34. H. Y He, **J. Wei\***, and G. Y. Zhang, “Preparation of Modified Melamino-Formaldehyde Resin and Study of Its Flocculation Property” *Journal of Shanghai University (Science Edition, English)*, **2000**, 4 (1), 260-282. ISSN 1007-6417;
35. H. Y. He, and **J. Wei\***, “The Flocculation of Melamino-Formaldehyde polymer in highly turbid water” *Shanghai Environmental Science*, **2000**, 19 (3) 432-433.
36. **J. Wei\***, Z. Li, and C. Xu, “The Galvanic Corrosion of Cast Aluminum-Carbon Steel and Inhibition of PBTCA in Aqueous Environment” *Journal Shanghai University*, **1999** 5 (3) 326, ISSN 1007-2861
37. Z. Li, X. H. Guo, **J. Wei**, and M. Qian, “Synthesis and Fouling Inhibition Ability studies of Sulfonated AA-AM copolymers”, *J. of East China University of Science and Technology*. **1999**, 25 (6) 622-624.

38. **J. Wei**, Y. Q. Qin, H. Y. Liu, and J. Q. Deng. "Direct Electron Transfer Reactions of Glucose Oxidase and D-Amino Acid Oxidase at a Glass Carbon Electrode in Organic Media" *Journal. Shanghai University (Science Edition, English)*, **1998**, 2 (1) 77-80. ISSN 1007-6417;
39. H. Y. Liu, Z. N. Zhang, M. Dai, Y. B. Fan, **J. Wei**, Z. N. Qiu, H. B. Li, X. Wu, J. Q. Deng, and D. Y. Qi, "Reagentless Amperometric Biosensor Highly Sensitive to Hydrogen Peroxide Based on the Incorporation of Meldola Blue, Fumed Silica and Horseradish Peroxidase into Carbon Paste" *Fresenius Journal Analytical Chemistry*, **1997**, 357 (3): 297-301.
40. H. Y. Liu, X. Zhang, **J. Wei**, X. Wu, D. Qi, Y. Liu, M. Dai, T. Yu, and J. Q. Deng, "An Amperometric Meldola Blue-mediated Sensor: High Sensitive to Hydrogen Peroxide Based on Immobilization of Horseradish Peroxidase in a Composite Membrane of Regenerated Silk Fibroin and Poly (vinyl alcohol)" *Analytica Chimica Acta*, **1996**, 329, 97-103.
41. **J. Wei**, and S. Z. Zheng, "An Inhibitor Complex for Corrosion and Fouling Prevention in Internal Combustion Engine Cooling Water System" *Corrosion & Protection* **1995**. 16 (6), 257-261, ISSN 1005-748X

### Book chapters

1. T. Mabe, J. Ryan, **J. Wei**,\* "Functional Thin Films and Nanostructures for Sensors", for Handbook of Nanoparticles and Architectural Nanostructured Materials, Editor-in-Chief: Ahmed Barhoum, Elsevier Publisher, **2017**, In Press.
2. Y. Liu, Z. Zeng, **J. Wei**,\* "Nano-architected Carbon-metal Oxide Electrodes for Supercapacitance Energy Storage" for Handbook of Nanoparticles and Architectural Nanostructured Materials, Editor-in-Chief: Ahmed Barhoum, Elsevier Publisher, **2017**, In Press.
3. **J. Wei**,\* Z. Zeng, Y. Lin "A LSPR-Coupled Fiber-Optic Nanoprobe for the Detection of Protein Biomarkers", Chapter 1 in Methods in Molecular Biology Series 1571, Biosensors and Biodetection 2017: Optical-based Detectors Volume 1: Methods and Protocols, 2nd Edt. Editors: Avraham Rasooly and Ben Prickril, Humana Press (Springer Copyright), Totowa, NJ, US, ISBN13: 9781493968466, **2017**.

### Conferences Presentations or Posters (\*Corresponding author or presenter)

#### After Joining JSNN/UNCG

1. A. Sheardy, **J. Wei**,\* Carbon Nanodot-Copper Sulfide Core-Shell Nanoparticle for Photothermal Therapy, The 17th Annual Poster & Vendor Night, Central NC ACS, March 24, 2017, Greensboro, NC.
2. W. Zhang, Z. Zeng, **J. Wei**,\* A Fluorescence-Electrochemical Study of Microwave-assisted Synthesis of Carbon Nanodots (CNDs) and Their Potential Applications, The 17th Annual Poster & Vendor Night, Central NC ACS, March 24, 2017, Greensboro, NC.
3. Y. Lin, **J. Wei**, K. Chittur, R. Lindquist, U. Manne, A LSPR Fiber Optic Biosensor for Point-of-Care Diagnostics, SPIE Photonics West, San Francisco, CA, Jan 31-Feb. 2, **2017**
4. T. Mabe, **J. Wei**,\* Bimetallic Nanostructured Arrays in SPR Biosensing, MRS/ASM/AVS Joint Symposium at NCSU, Raleigh, NC 27695, Nov. **2016**.
5. Y. Liu, **J. Wei**,\* A Nanoarchitected Electrode for A High Performance Pseudocapacitor, MRS/ASM/AVS Joint Symposium at NCSU, Raleigh, NC 27695, Nov. **2016**.
6. T. Mabe, Z. Zeng, **J. Wei**,\* Bimetallic Nanostructured Arrays in Surface Plasmon Resonance Sensing, September 28, JSNN Nanomanufacturing **2016** conference, Greensboro, NC (the best poster award).
7. **J. Wei**,\* Z. Zeng, T. Mabe, J. Starobin, "A Versatile Plasmonic Nano-Opto-Fluidic (p-NOF) Platform", Plasmonics and Nanophotonics, the Gordon Research Conferences, July 10-15, **2016**, Sunday River in Newry, ME, USA
8. Z. Zeng, **J. Wei**,\* "A Versatile Nano-biosensor for Blood Biomarkers: Analysis of surface plasmon (SP) generation and an optimal nano-optofluidic device for sensing applications", The 16<sup>th</sup> Annual Poster & Vendor Night, Central NC ACS, April 12, **2016**, Greensboro, NC, USA

9. T. Mabe, **J. Wei\***, “Enhanced Sensitivity of Plasmonic Devices using Nanostructures and Bimetallic Layers”, The 16<sup>th</sup> Annual Poster & Vendor Night, Central NC ACS, April 12, **2016**, Greensboro, NC.
10. T. Mabe, Z. Zeng, **J. Wei\***, “Thin film Gold Nanoslit Arrays for Protein Sensing and A Bimetallic Nanoslit Array Development” September 30, **2015**, JSNN Nanomanufacturing 2015 conference, Greensboro, NC
11. Y. Liu, **T. D. Dolidze**, S. Singhal, D. E. Khoshtariya and **J. Wei\***, “Direct wiring and two-electron exchange mechanism for glucose oxidase at GC/nanotube electrodes”, the 10th European Biophysics Congress, July 18-22, **2015**, Dresden (Germany)
12. Y. Liu, A. Aboagye, L. Zhang, **J. Wei\***, “A nano-architected electrode for a high-performance supercapacitor”, Quantifying Exposure to Engineered Nanomaterials (QEEN) from Manufactured Products” workshop, July 7-8, **2015**, Washington DC.
13. Y. Liu, A. Aboagye, L. Zhang, **J. Wei\***, “An electrospun carbon nanofiber electrode for supercapacitive energy storage”, September 24, **2014**, JSNN Nanomanufacturing 2014 conference, Greensboro, NC
14. J. Smith, R. K. Sharma, L. Zhang, **J. Wei\***, “Inspection of Nanostructure Inspired Photonic Devices for Sensor Applications”, SRC TECHCON 2014, Sep. 7-9, **2014**, Austin, TX

#### **Before Joining UNCG**

15. JT Zhang, SL Zhu, GK Vegesna; **J. Wei\***; FT Luo, HY Liu, “Highly water-soluble, near-infrared emissive copolymeric BODIPY dyes and their cancer imaging application”, *The Amer. Chem. Soc.:* **2012**, 244, 529-ORGN
16. **J. Wei\***, S. Singhal, H. Y. Liu, “An Electrochemical Probe Technology for a. Label-Free, Point-of-Care Biosensor” 222 ECS Honolulu PRiME Oct. **2012**
17. **J. Wei\***, S. Singhal, T. Massey, H. Sato, M. Maharbiz\* “Power Generation from Complex Sugars in Live Insect Tissue” 221st ECS Meeting, Seattle, WA, May 6-11, **2012**.
18. **J. Wei\***, M. Kofke, M. Mendis, H. Song, S. Singhal, DH. Waldeck, “An In-Plane Nanofluidic Nanoplasmonics-Based Platform for Biodetection”, 3rd Micro/Nanoscale Heat & Mass Transfer International Conference, MNHMT2012, March 3-6, **2012**, Atlanta, Georgia, USA
19. **J. Wei\***; Liu, H.Y.; Velayudham, S., A Conjugated Polymer-Copper Ion Nanocomplex for Sensing A Nerve Agent, Proc. of Nanoelectronic Devices for Defense & Security Conference (NanoDDS), New York, August 26-28, **2011**
20. **J. Wei\***, M. Rexius, M. Kofke, Y. Wang, S. Singhal, D. H. Waldeck, “Nano-plasmonics Sensing and Integration with Microfluidics for a Lab-on-chip Biosensor”, TechConnect World Conference & Expo Boston, MA, June 13-16, **2011**
21. **J. Wei\***; M. Kofke, M. Rexius, S. Singhal, J. Sullivan, and D. H. Waldeck, “Nano-plasmonics based sensing and integration with microfluidics for a lab-on-chip biosensor” *The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010)*, Honolulu, Hawaii, USA, December 15 - 20, **2010**.
22. **J. Wei\***, D. E. Khoshtariya, S. Singhal, T. D. Dolidze, and D. H. Waldeck, “Insight to Electron Transfer Paradigm for Glucose Oxidase Entrapped in a Nanomaterial Matrix” *The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem 2010)*, Honolulu, Hawaii, USA, December 15 - 20, **2010**.
23. V. Kotipalli, Z. Gong; Y. He; S. Yadav; S. Penmetsa, **J. Wei**, L. Que\*, “Carbon nanotube film-based cantilever for light and thermal energy harvesting” *9th IEEE SENSORS CONFERENCE* Hawaii, USA November 1-4th, **2010**,
24. **J. Wei\***, M. Kofke, S. Singhal, M. Rexius, J. Sullivan, and D. H. Waldeck, “Nanoplasmonics-based Ultrasensitive Biological Sensing System”, *International Symposium on Spectral Sensing Research (ISSSR)*, Springfield, Missouri, June 21-24, **2010**.

25. S. Singhal, **J. Wei**, S. Northcutt, and V. Svoboda\*, “Novel Micropower Source For Insect Based Sensor and Communication Platforms” *International Symposium on Spectral Sensing Research (ISSSR)*, Springfield, Missouri, June 21-24, **2010**.
26. S. Singhal, V. Svoboda, **J. Wei**, and S. Northcutt, “Biobattery Platform for Soldier Portable Power Sources”, *44<sup>rd</sup> US National Power Source Conference Proceedings*, June 16-18 **2010**, 4pp.
27. **J. Wei**\*, M. Kofke, S. Singhal, and D. H. Waldeck, “Transmission SPR of Gold Nanoslit and Ultrasensitive Detection of Proteins”, *the 4<sup>th</sup> International Conference on Bioinformatics and Biomedical Engineering (iCBBE)* Chengdu, China, June 18-20, **2010**.
28. J. P. Guo\*, H. S. Leong, R. Lindquist, **J. Wei**, and D. Brady, “Chip-Level Surface Plasmon Resonance Biochemical Sensors Using Patterned Metallic Nanostructures”, *SPIE Photonic West*, San Francisco, CA, Jan. 23-28, **2010**.
29. S. Singhal\*, **J. Wei**, S. Northcutt, K. Pant, and V. Svoboda, “Novel MicroPower Source for Insect Based Sensor and Communication Platforms” *Chemical and Biological Defense Science and Technology (CBD S&T) Conference*, Dallas, TX, **2009**.
30. S. Singhal, **J. Wei**\*, and C. Onwere, “Bio-battery: Renewable Energy Source for Portable Power Application”, *NSTI Nanotechnology Conference and Expo*, Houston, TX, May, **2009**.
31. V. Svoboda\*, **J. Wei**, C. Onwere, S. Singhal, Y. Tian, E. Chi, and P. Attanassov, “Glucose-air Enzymatic Fuel Cell for Portable Electronics Applications”, *216<sup>th</sup> Electrochemical Society Meeting*, Vienna, Austria, **2009**.
32. K. Bhatt, Y. Wang, **J. Wei**, and K. Pant, Nanoelectrokinetic, “Label-Free Sensor for Toxic Industrial Chemical Detection”, *Chemical and Biological Defense Science and Technology (CBD S&T) Conference*, Dallas, TX, **2009**.
33. A. Gidwani\*, D. Sengupta, **J. Wei**, S. Deaconu, and J. V. Cole, “Adsorption Column For Removing Trace Amount Of Copper From Jet Fuel”, *Am. Chem. Soc., Div. Fuel Chem.* **2009**, 54 (2), 1-4
34. **J. Wei**\*, A. Bedekar, C. Onwere, and S. Sundaram, “Generation of Electricity from Biofuel Using Nano-catalytic System”, *43<sup>rd</sup> US National Power Source Conference Proceedings*, **2008**, 335-338
35. **J. Wei**\*, D. H. Waldeck, Y. Wang, M. Kofke, K. Pant, and S. Sundaram, “A Novel Plasmonics-Based Nanotechnology for a Label-Free, On-Chip Biosensor”, *ISSSR*, Hoboken, NJ, **2008**.
36. **J. Wei**\*, S. Mallin, and A. Bedekar, “A Hybrid Biobattery: Generation of Electricity from a Combined Nano-catalytic system”. *The Amer. Chem. Soc. 234<sup>th</sup> National Meeting*: Boston, MA, USA, Aug. 19-23, **2007**.
37. G. R. Wang\*, J. Guo, Y. Lin, J. Feng, **J. Wei**, Y. Wang, S. Krishnamoorthy, and S. Sundaram, “Laser-Induced Fluorescence Photobleaching Anemometer for Flow Velocity Measurement in Sub-Microscale Fluidic Channels”. *IEEE Lasers and Electro-Optics Society*, pp 34-35, **2006**, Quebec City, QC, Canada.
38. **J. Wei**\*, G. Bird, C. Schafmeister, and D. H. Waldeck\*, “Molecular chirality and charge helicity in charge transfer through self-assembled chiral monolayers” *The Amer. Chem. Soc.*: **2005**, 229 U758-U758.
39. D. H. Waldeck\*, **J. Wei**, and A. Napper, “Electron Tunneling Pathways between molecules and electrodes”. *The Amer. Chem. Soc.*: **2005**, 229, U726-U726 496-COLL
40. D. Waldeck\*, H. Yue, **J. Wei**, R. Clark, H. Y. Liu, "Fundamental Studies of Electron Tunneling between Electrodes and Proteins" *the Symposium: Electron Transfer Through Organic and Biological Bridges II*, of the *207<sup>th</sup> Meeting of The Electrochemical Society*, May 17, **2005**. Quebec, Canada. Paper #1417.
41. **J. Wei**\*, and D. H. Waldeck\*, “Ligand Nanoengineering of Cytochrome c to Metal (Au, Ag) Electrodes and an Electron Transfer Study”, *204<sup>th</sup> The Electrochemical Society*, Orlando, FL. Oct. 12-18, **2003**.
42. D. H. Waldeck\*, and **J. Wei**, “Fundamental Studies of Electron Transfer between Cytochrome c and Electrodes”, *The Bioelectrochemical Society XVII International Symposium on Bioelectrochemistry and Bioenergetics*, Florence, Italy. June 19, **2003**.

43. **J. Wei\***, and D. H. Waldeck\*, “Bound Cytochrome c to Metal Electrodes and Charge Transfer Study”, *Science2003: Improving the Human Condition*, the University of Pittsburgh, Sep. 24-26, **2003**.
44. **J. Wei\***, and D. H. Waldeck\*, “Electron Transfer Dynamics of Cytochrome c on a SAM Modified Electrode”. *Synergy in Science*, Pittsburgh, PA, Sep. 18-20, **2002**.
45. **J. Wei\***, and D. H. Waldeck\*, “Bioelectrochemistry and Electron Transfer of Immobilized Cytochrome c on a SAM Modified Electrode” *Presentation of Dept. of Chemistry and Industrial Visiting Committee*, University of Pittsburgh, PA, **2002**. Winner of Excellent Poster Award

### **PATENTS & IP DISCLOSURE**

- US Application: 2017/62/478,773, "Separator-Free Energy Storage Devices and Methods", filed on March 30, **2017**, EFS ID: 28785044, Inventor: **J. Wei**, Y. Liu, Z. Zeng
- US 9509009, approved on 11/29/2016, Enzyme catalyzed oxidation of hydrocarbons, Inventors: Y. Ulyanova, S. Minter, S. Singhal, V. Svoboda, **J. Wei**. Issued 11/29/2016
- US Application #: 2016/62357180. “*Nanoplasmonic devices and applications thereof*” (#D15-0017), filed on June 30, **2016**, EFS ID: 26233080. Inventor: **J. Wei**
- UNCG Disclosure #D16-0001, Portable urinary F2-isoprostanes assessment for determining fat utilization, July 13, **2015**,
- UNCG Disclosure #D15-0018, Morphology controllable deposition of metal oxide for enhanced energy storage, June 15, **2015**
- UNCG Disclosure #D15-0017, A versatile optofluidic platform for multiplexed detection of small molecular biomarkers in body fluids, June 12, **2015**
- *US 8703022*, 04/22/2014. Electrically conductive ink and uses thereof. Inventors: V. Svoboda, **J. Wei**, S. Singhal
- *US 8685286*, 04/02/2014. Electrically conductive ink and uses thereof. Inventors: V. Svoboda, **J. Wei**, S. Singhal
- *US 8158409*, 04/17/2012 Nanoscale Surface Plasmonics Sensors with Nanofluidic Control, Inventors: **J. Wei**, S. Singhal, D. H. Waldeck, M. Kofke
- *20080213631*: Hybrid Power Strip, U.S. Patent Application No. 60/858,590
- *20090120843*: Filtration Apparatus and Method, US Patent Application No.: 11/930,819

### **INVITED TALK/SEMINAR**

1. 02/03/2017, invited talk: “Nanoscale Interactions: Nanoplasmonics for sensing and fluorescence origin from Carbon nanodots”, The Department of Chemistry, UNC Greensboro, NC
2. 04/14/2016, invited talk: “*Nanoplasmonic Sensing and A Nano-opto-fluidic Platform*”, Department of Chemistry, North Carolina A&T State University, Greensboro, NC.
3. 03/02/2016, invited talk: “*Nano-plasmonic biosensors and an analysis of surface plasmon resonance towards an optimal nano-optofluidic device*”, the Fitzpatrick Institute for Photonics (FIP, involving over 120 faculty members from 37 departments), Duke University, Durham, North Carolina, USA.
4. 01/09/2016, invited talk: “*Plasmonic and Polymeric Nanoprobes Toward Cancer Diagnosis*”, at the International Summit for Biological Targeting Diagnosis and Therapy, Nanning, Guangxi Province, China,
5. 01/08/2016, invited talk: “*Enhanced nanoplasmonic nanoprobes for cancer biomarker detection and polymer imaging agent for cancer cells*” Guangxi National University, Nanning, China,
6. 8/21/2015, “*LSPR-based biosensors*”, Department Mechanical Engineering (H. Cho Lab), UNC charlotte, NC



7. 3/18/2014 “*Nano-bioelectronics & Nano-plasmonics: Studies of nanoengineered biointerface and applications in energy and sensing*”, Biological and Agricultural Engineering, North Carolina State University (NCSU)
8. 12/2013, “Nanoplasmonics and Nanoelectronics” Invited talk to the Board Directors of Gateway Research Park, Greensboro, NC
9. 09/16/2010: Invited talk, “*Micro/nano Systems for Clean Energy and Biosensing: Bioelectronics and Nanoplasmonics*”, The Bioengineering Program at Louisiana Tech University.
10. 9/22/2009: Invited Presentation, “*Bio-battery: Renewable Energy Source for Portable Power Application*” Lockheed Martin Special Symposium at *NSTI Nanotechnology Conf. and Expo*, Houston, TX.

## **TEACHING**

JSNN/University of North Carolina at Greensboro (UNCG, since fall 2013)

NAN-601: Nanochemistry (Foundational course, Instructor and developer, fall semester, 3 credit hours)

NAN-611-01: Analytical Chemistry (Laboratory rotation, Course developer, fall and spring semesters, 1 credit hour)

NAN-611-06: Nano-Electrochemistry (Laboratory rotation, Course developer, fall and spring semesters, 1 credit hour)

NAN-611-26: Biosensors and Bioelectronics (Laboratory rotation, Course developer, fall and spring semesters, 1 credit hour)

NAN-692-08: Directed graduate studies (seminar-based, course developer, fall semester, 1 credit hour)

NAN-630: Advance in Nanobiosensors (course developer, spring semester, 3 credit hours)

NAN-724: Nanoscale Reaction (course developer, spring semester, 3 credit hours)

NAN-799: Dissertation Research. 2013-present, student rating of class 100%

## **SUPERVISING, TRAINING AND MENTORING**

**JSNN/UNCG:**

### **Advisees:**

Yiyang Liu (PHD, spring 2014-present): Nanomaterials electrochemistry and energy storage

Taylor Mabe (PHD, fall 2014-present): Bimetallic LSPR and SPRi for sensing

Zheng Zeng (PHD, fall 2014-present): Nano-opto-fluidic chip, fundamentals and applications

Alex Sheardy (PHD, fall 2015-present): Hybrid nanoparticles synthesis and biomedical applications

Durga M. Arvapalli (PHD, fall 2015-present): Real-time monitoring cell on-chip

Harish Chevva (PHD, fall 2015-present): SERS for single molecular sensing

Wendy Zhang (PHD, fall 2015-present): Carbon quantum dots (CQDs) and applications

Kokougan Allado Yawovi, (fall 2016-present): energy conversion and storage

Zuwei Ji (PHD, fall 2016-present): Nanomaterials and biomedical applications

Bhawna Nagra (PHD, fall 2016-present): SERS and sensing

Snehal Shah (PHD, fall 2016- present): Nanoplasmonics and SPR biosensors

### **Thesis committee:**

De'Andre J. Cherry (MS in Nanoengineering, 2013-2014, graduated), Thesis title: *Smart Polyacrylonitrile (PAN) Nanofibers with Thermal Energy Storage & Retrieval Functionality.*

Richard Vestal (PHD in Nanoscience, 2013-2014, graduated), Thesis title: *Targeting the atypical chemokine receptor ACKR3/CXCR7 for the treatment of cancer and infectious diseases*

Karshak Kosaraju (PHD in Nanoscience, 2013-2015, graduated), Thesis title: *Study of Toxicity and Uptake of Nanoparticles towards understanding Biotic-Abiotic Interactions*

Stephen R. Meier (PHD in Nanoscience, 2014-2016, graduated), Thesis title: *The Investigation of Variable Nernst Equilibria on Isolated Neurons and Coupled Neurons Forming Discrete and Continuous Networks*

Reynaldo Diaz (PHD in Nanoscience, 2014-present), Thesis title: *Bio-interfaces of nanostructures and cells.*

Scott Jalovec (PHD in Nanoscience, 2015-present)

Michael Azad (PHD in Nanoscience, 2015-present) Thesis title: *Microwave assisted polymerization*

Rakkiyappan Chandran (PHD in Nanoscience, 2015-present), Thesis title: *Bio-mimicking Multimodal Nanostructured Surfaces using a Self-Assembly Biopolymer*

Henry Ochije (PHD in Nanoscience, 2015-present), Thesis title:

Afraa A. Abusalih (PHD in Nanoengineering, 2015-present), Thesis title: *Detection and Measurement of Carbon Nanotubes in Industrial Wastewater*

Smith Woosley (PHD in Nanoengineering, 2015-present), Thesis title: *Functional 3D Printing with Thermoplastic Nanocomposites for Energy Storage Applications*

#### **Alumni at JSNN:**

Ashutosh Shah (MS in Nanoengineering, 2014-2016, co-advisor): simulation/modeling for energy storage

Alex Aboagye (PHD in Nanoengineering, 2014, Co-advisor), Thesis title: *Carbon Nanofibers from Electrospinning and their Applications*

Jay Wilhelmi (undergraduate, spring 2014),

Jake Smith (undergraduate, summer 2014)

Justin Campbell (undergraduate, spring 2015)

Juan Peñaranda (undergraduate, spring 2016)

Shuayl Alotaibi (MS in Nanoscience, spring 2016)

#### **JOURNAL REVIEWER**

- Biosensor and Bioelectronics (*Elsevier Publisher*)
- Biomedical Microdevices (*Springer Link*)
- Diagnostic Microbiology and Infectious Disease (*Elsevier Publisher*)
- Electrophoresis (*Wiley Online Library*)
- IEEE Electronic Device Letters (*IEEE*)
- International Journal of Molecular Sciences (*MDPI Publisher*)
- Journal of Electroanalytical Chemistry (*ScienceDirect Publisher*)
- Micromachine (*MDPI Publisher*)
- Molecules (*MDPI Publisher*)
- Physica B Condensed Matter (*ScienceDirect Publisher*)
- Sensors & Actuators: B. Chemical (*Elsevier Publisher*)