Jiajia Wu

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Education

Zhejiang University, Hangzhou, China　　　　　　　　　　　　　　　　2016 – present

Ph.D. student in Biomedical Engineering

Zhejiang University, Hangzhou, China　　　　　　　　　　　　　　　　2012 – 2016

Bachelor of Engineering in Electronic Information Engineering　　　　　　　GPA: 3.75/4.0

Publications

1. **J. Wu**, Y. Lu, Z. Wu, S. Li, Q. Zhang, Z. Chen, J. Jing, S. Lin, Q. Liu. Two-dimensional molybdenum disulfide (MoS$_2$) with gold nanoparticles for biosensing of explosives by optical spectroscopy. 2017 (Submitted).

2. N. Li, Y. Lu, S. Li, Q. Zhang, **J. Wu**, J. Jiang, G. Liu, Q. Liu. Monitoring the electrochemical responses of neurotransmitters through localized surface plasmon resonance using nanohole array. *Biosensors and Bioelectronics*, 2017, 93, 241-249. (SCI, IF: 7.780)

3. Y. Lu, Y. Huang, S. Li, Q. Zhang, **J. Wu**, Z. Xiong, L. Xiong, Q. Wan, Q. Liu. Fat taste detection with odorant-binding proteins (OBPs) on screen-printed electrodes modified by reduced graphene oxide. *Sensors and Actuators B: Chemical*, 2017, 252, 973-982. (SCI, IF: 5.401)

4. S. Li, Q. Zhang, Y. Lu, D. Ji, D. Zhang, **J. Wu**, X. Chen, Q. Liu. One step electrochemical deposition and reduction of graphene oxide on screen printed electrodes for impedance detection of glucose. *Sensors and Actuators B: Chemical*, 2017, 244, 290-298. (SCI, IF: 5.401)

5. W. Mao, L. Sun, J. Xu, **J. Wu**, X. Zhu. Analysis and design of high performance wireless power delivery using on-chip octagonal inductor in 65-nm CMOS. *System-on-Chip Conference (SOCC), 2015 28th IEEE International*, IEEE, 2015, pp, 401-405. (EI)

Research Experience

Nano-plasmonic biosensor coupling electrochemistry to monitor heavy metal ions with nanoarrays　　　　ongoing

- Deposited anodic aluminum oxide (AAO) to fabricate nanoarrays with gold nanoparticles through cyclic voltammetry (CV)
- Designed specific DNA strands that were sensitive to heavy mental ions and could self-assemble on gold nanoarrays
- Designed the reaction container with SolidWorks and had it printed by 3D printing technology in order to experiment efficiently and save samples
- Assembled DNA with nanoarrays and used the biosensor to detect Hg^{2+} through localized surface plasmon resonance (LSPR) spectroscopy
- Used electrochemical methods-differential pulse voltammetry (DPV) and square wave voltammetry (SWV) coupling with LSPR for Hg^{2+} detection to get higher sensitivity

Optical biosensor of molybdenum disulfide (MoS$_2$) with gold nanoparticles for explosive detection

03/2017 – 09/2017

- Synthesized the composites of MoS$_2$ with gold nanoparticles and evaluated the composites with transmission electron microscopy (TEM), scanning electron microscope (SEM), Raman spectra, etc.
- Functionalized the nanocomposites with specially-designed peptides which could capture TNT molecules
- Experimented with the biosensor to detect explosives by absorption spectra with an optical system
- Analyzed the data with softwares (MATLAB, FDTD Solutions, CrystalMaker, etc.) and wrote the paper

Analysis and design of high performance wireless power delivery using on-chip octagonal inductor in 65-nm CMOS 09/2014 – 08/2015

- Optimized the length-width ratio of MOS transistors applied in the rectifier
- Employed Cadence to simulate the rectifier and achieved its optimal rectification efficiency

Patents

1. Q. Liu, S. Li, Q. Zhang, Y. Lu, **J. Wu**, "A method to reduce and deposit composites of graphene and 3-aminophenylboronic acid by one step for glucose detection", Publication No: 201610873894.4
2. X. Zhu, R. Huang, L. Shao, **J. Wu**, G. Sun, W. Wang, "An error codes detection based background calibration for split SAR ADC", Publication No: 201510173136.7
3. G. Xiao, T. Yang, B. Shi, Z. Luo, C. Li, Z. Yang, M. Yan, T. Hu, S. Song, K. Sun, **J. Wu**, "A method and system using solar energy to treat sewage by spotlights and frequency division utilization", Publication No: 201510471612.3

Internships and Competitions

Assistant Application Engineer, Joulwatt Technology 08/2015 – 06/2016

(Background: Joulwatt Technology is an America-invested company headquartered in the United States and focuses on the research of power management chip)

- Built a behavior model of Triac dimmable boost solution based on JW1807
- Optimized the system simulation , finished the evaluation board and tested its performance

Competitions

- **A portable mobile device for non-invasive glucose detection**, Second Prize in the 15th "Challenge Cup" University Student Extracurricular Scientific Works Competition, the fourth designer 03/2017 – 05/2017
- **Photo-catalysis Sewage Treatment System**, Second Prize in the 8th National University Student Social Practice and Science Contests on Energy Saving & Emission Reduction, the second designer 03/2015 – 08/2015

Honors and Awards

10/2017	Academic Scholarship
06/2016	Outstanding Graduates of Zhejiang University; Certificate for Excellent Engineer Training Program
11/2015	First-class Scholarship for Excellence in Research and Innovation; Merit Student; Third prize of the National Talents Training Base; Third-class Scholarship for Outstanding Students
11/2014	Scholarship for Excellent Social Practice
11/2013	Merit Student; Third-class Academic Scholarship; Third-class Scholarship for Outstanding Student

Extracurricular Activities

Title of Five-Star Volunteer (the highest rank of volunteers in Zhejiang University)

- Volunteered in the press center of G20 Summit to help foreign and Chinese media 09/2016
- Supported education as a volunteer teacher in a rural area 07/2013

Title of Outstanding Student Leader (three times)

- The Presidium Assistant, Students Associations Union of Zhejiang University 09/2012 – 06/2014
- Leader of the Secretariat, Youth Marxist Training Center of Zhejiang University 09/2014 – 06/2015

Visiting group to Hong Kong 11/2013

- Took classes in Peter F. Drucker Academy to learn management knowledge
- Visited campuses of several universities in Hong Kong

Skills

Computer skills: C; VHDL; MATLAB; Cadence; Altium Designer; SolidWorks; FDTD Solutions; CrystalMaker; etc.

Lab skills: electrochemistry workstation; SEM/TEM microscope; Raman Spectroscopy; oscilloscope; etc.