

YIBO LI

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Electrical & Materials Characterization – Microwave Electronic Device – 2D & 3D Printing

PROFILE OF QUALIFICATIONS

- 2+ years' experience, professional and proficient on 2D and 3D printing techniques, electrical and materials characterization, microwave devices integration on flexible substrate, etc.
- Specialist in coplanar waveguide fabrication and development, access 2D device printing process flow to reduce the surface roughness, ink over-spray and improve transmission efficiency.
- Extensive experience working in 3D printing environments, optimizing microwave devices printing processes, troubleshooting material issues, and working with multiple laboratory team members to troubleshoot problems.
- Offering 7+ years of experience in the cleanroom for semiconductor manufacture with the University of Massachusetts Amherst and University of Toledo, specializing in designing 1T1R memory crossbar structure.
- Knowledgeable of multiple state-of-art printing and photolithography technologies, professional on any electronic devices' characteristics measurement and analysis.
- Numerous peer-reviewed journal and conference publications, reviewer of multiple professional journals.

KEY SKILLS

RF/MW Design and Test – AutoCAD – HFSS – Keysight 50GHz 4 Port Network Analyzer
3D/2D Printing – Optomec AJ 5X – Optomec AJ 200 – Nordson Automated Dispensing System
RF/DC Sputtering – Electron-beam Evaporation – Chemical Vapor Deposition – Atomic Layer Deposition
Photolithography Processes – Reactive Ion Etching – Liffoff and Wet Etching – Spin Coating – Mask Design
Keithley 4200 Semiconductor Analyzer – Keysight B1500A Semiconductor Analyzer – Electrical Probe Station

PROFESSIONAL DEVELOPMENT

The University of Massachusetts Lowell

Post-Doc Research Associate, Printed Electronics Research Laboratory **2019 – present**

- Collaborate with PERL professor and Raytheon engineers on the design, fabrication and testing of microwave power device and interconnects
- Assist in developing novel substrates, inks, characterization of material properties, and the additive printing of multi-material-based Microwave devices on plastic sheet using AutoCAD design and HFSS simulation

The University of Massachusetts Amherst

Post-Doc Research Associate, The Nanodevices & Integrated Systems Lab **2017 – 2018**

- Partnered with UMASS professors on the design of a one transistor one RRAM (1T1R) crossbar array
- Determined the viability of specific materials in commercial processes and worked to find applicable solutions
- Coordinated with team members to verify materials compatibility for achieving the best device performance
- Improved RRAM device to achieve nanosecond switching speed at 100 uA switching current and ± 1.8 V switching voltage while maintaining superior endurance ($>1 \times 10^6$ cycles) and data storage capacity (2 bits)

The University of Toledo

Graduate Assistant, Center of Materials & Sensor Characterization **2012 – 2015**

- Leveraged an extensive knowledge and awareness of cleanroom practices while performing research on RRAM materials study by utilizing DB FIB-SEM, STEM, XRD, etc, especially on FIB sample preparation for STEM.
- Performed testing and materials analysis on solar cells and thin film devices for multiple key stakeholders

Research Assistant, Nanoelectronics Device & Materials Laboratory **2011 – 2016**

- Gained experience in the design and development of RRAM devices with HfO₂ and ZnO functional layer
- Optimized and simplified the fabrication processes flow with other team members to reduce the risk of electrode oxidation, parasitic oxidation and other chemical contamination in device manufacture
- Successfully investigated the endurance failure mechanism of low temperature deposited ZnO based RRAM

EDUCATION

The University of Toledo | Ph.D., Electrical Engineering (2016)

Dissertation: Understanding the Mechanism of Failure in Low Temperature Zinc Oxide base RRAM Devices

Syracuse University | M.S., Electrical Engineering (2010)