SEMI 202

EDUCATION

Master of Science – Chemistry – Photovoltaic & Semiconductor Device Processing
University of Oregon (UO) – Eugene, OR — Anticipated 2018

Bachelor of Science – Chemical Engineering – Nanotechnology Processes & Sustainability
Oregon State University (OSU) – Corvallis, OR — September 2016
GPA: 3.62

GENERAL SKILLS

- Leadership
- Organization
- Data Analysis
- Literature Analysis

TECHNICAL SKILLS

- Chemical Laboratory Safety
- Process Characterization

TOOL SKILLS

- Quartz Crystal Microbalance
- Ellipsometry
- Infrared Spectroscopy
- UV-Visible Spectroscopy

RESEARCH EXPERIENCE

Lab of Doug Keszler, PhD – Corvallis, OR

Team Leader - Engineering Undergraduate Capstone Project — March to June 2016

This project focused on determining the optimal solvent for developing butyltin hydroxide oxide (BHO) which showed promise as a high-resolution thin film photoresist.

- Expanded the host laboratory's capacity for quantitatively measuring the dissolution rate of thin film materials by installing a Quartz Crystal Microbalance (QCM) capable of detecting masses as small as 0.4 ng/cm^2, and writing a SOP for the instrument
- Successfully planned and implemented the project in a 4-month timeline; culminating in the presentation of the results at the OSU Engineering Expo and the delivery of a written report to the project sponsors
- Demonstrated that the dissolution rate of BHO thin films in methanol (~4 μg/min) was significantly lower than in 2-heptanone (~200 μg/min)
- Designed a technical poster which clearly communicated to a general audience using peer feedback from technical presentations and exhibited it at the OSU Engineering Expo

Laboratory Manager & Undergraduate Researcher — September 2013 to June 2016

- Facilitated thin film photoresist research by synthesizing tungsten-peroxide compounds and derivative solutions on-demand for experimental use, verifying synthetic accuracy through titration, and spin-coating the solutions onto silicon wafers
- Improved laboratory safety and regulatory compliance by restocking supplies and cataloguing 350+ stored chemicals in a custom spreadsheet
- Compiled a hardcopy collection of Safety Data Sheets (SDS) for all (350+) chemicals in the lab and added new SDSs as chemicals were procured
- Increased laboratory efficiency and researcher productivity by performing regular maintenance and cleaning of laboratory equipment, allowing graduate and post-doctoral researchers to focus on academic matters without concern for sample contamination

Research Intern – Feasibility of Molybdenum Peroxide Thin Film Photoresists June to September 2013

- Developed a method for synthesizing ligand-stabilized molybdenum peroxide complexes by starting from a process reported in literature and optimizing the process parameters to achieve the desired results
- Characterized experimental molybdenum peroxide complexes with infrared and Raman spectroscopy, determining the extent of metal peroxidation and the presence of any secondary products
- Tested the thermal sensitivity of the solubility of molybdenum peroxide thin films by heating samples at different temperatures, washing the heated films with isopropanol, and visually comparing the sample to a bare wafer and an unbaked thin film sample
- Presented experimental results and conclusions in both a poster expo and a formal talk to researchers, professors, and fellow interns at the end of the internship

WORK EXPERIENCE

Footwise Inc. – Corvallis, OR August 2016 to June 2017

Assistant Manager/Repair Technician

- Reduced the delay in problem resolution from ~2-5 days to <24 hours by facilitating faster communication between the repair shop and store fronts through standardized emails, preemptive responses to common queries, and improved telephone training
- Decreased the storage space required for repair parts by 20% and enabled weekly inventory counts (up from monthly) by reorganizing and consolidating existing storage to implement peer suggestions
- Eliminated avoidable dead time between supply depletion and restock by conducting inventory counts more often and immediately communicating the results to the employees in charge of purchasing

Lowe's Regional Distribution Center – Lebanon, OR March to June 2017

Team Member

- Transferred to heavy equipment department within 1 month of hire, compared to average of 5+ years
- Performed daily safety inspections of equipment
- Safely operated heavy equipment in crowded warehouse
- Used forklift daily to organize large appliances within warehouse based on standardized instructions
- Recognized by upper management for workplace excellence with the top rank of 'Leading' in the categories Work Ethic, Punctuality, and Flexibility