

Austin J. Fox

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Education:

Oregon State University, Corvallis, Oregon – Ph.D. Materials Science, February 2018

Alfred University Inamori School of Engineering, Alfred, NY – B.S. Ceramic Engineering, December 2011

Technical/Repair Experience:

Mechanical: Welding, roofing, masonry, plumbing, engine repair, auto bodywork, bicycle repair, basic woodwork

- Rotary vane vacuum pump rebuilds – Edwards, Acetal, Varian
- Heat exchanger and chiller – Troubleshoot and pump rebuild
- Goniometer circle and safety interlock alignment for Bruker Discover D8 Diffractometer

Electrical: Circuit analysis and troubleshooting, equipment installation, wiring and repair, soldering

- Mass balance photo detector diagnosis and repair with LED replacement of incandescent bulbs on Diamond DTA/TGA
- RF power supply and matching unit for sputter system – Diagnosis and repair of variable capacitor fins

Consulting Service Technicians: Communicating issues, collaborative problem solving, following detailed guidance

- X-Ray tube holder interlock failure, X-Ray generator diagnosis – Bruker Discover D8 Diffractometer
- Bearing lubrication and power supply mismatch – Turbo Molecular Vacuum Pump

Design, Redesign, and Build: Drafting (Solidworks, AutoCAD, FreeCAD), machining, equipment assembly

- Vacuum Evaporation System – Combination of two nonfunctional systems into one highly functional system
- Designed Pulsed Laser Deposition system for *in-situ* Laser Annealing and Ellipsometry
- High Vacuum Deposition Stage Manipulator – Design, machine, and build
- O-18 diffusion furnace – Design and build low pressure regulation system

Leadership Experience: Nonviolent communication, Teal practices, consensus decision making, constructive feedback

- X-Ray Diffractometer Instrument Manager – Trained 50+ users January 2014 – present
- Corvallis Bicycle Collective Board Member/Chair/Facilitator/Shop Manager November 2012 – present
Coordinated/managed work parties of 20+ volunteers, revamped bylaws and organizational structure
- President, Keramos Ceramic Engineering Fraternity Fall 2010 – Winter 2011
- President, Materials Advantage NY chapter Fall 2010 – Winter 2011
- Coach, Alfred University Track and Field Fall 2010 – Fall 2011
- ABET Student advisor, Alfred University Fall 2011

Laboratory Experience:

General: Scanning Electron Microscopy, X-Ray Diffraction (2-Theta, Rocking Curve, Grazing Incidence), Atomic Force Microscopy, Piezoresponse Force Microscopy, Ellipsometry, Fractography, Electron Probe MicroAnalysis, Inductively Coupled Plasma Optical Emission Spectroscopy, X-Ray Fluorescence Spectroscopy, Archimedes Density, Ferroelectric and Dielectric Electrical Testing, Clean Room, Solid State Ceramic Processing, SOP design and documentation

- Developed Process for DC Magnetron Sputtering Highly Crystallographically Oriented Pt
- Chemical Solution Deposition of Complex Oxides from Inverted Mixing Order and Sol Gel Solutions
- Pressure Vessel Digestion of Complex Oxides with HF/HNO₃ Solution for ICP OES
- RF Magnetron Sputtering of Complex Oxides (PZT, BNKT)

Coding Experience: *Fluent in:* Python, Git; *Competent in:* R, MatLab, Fortran, Visual Basic, HTML, CSS, Javascript

- Graphical User Interface for Controlling Pulsed Excimer Laser and Substrate Manipulation Motor (Threaded)
- Instrument Controller User Tracker for X-Ray Diffractometer – Hashed and Salted Passwords, Windows system control
- Update of Electron Microprobe Data Analysis Fortran Program to Object Oriented Python Package

Teaching Experience:

- Corvallis Bicycle Collective Shop Manager – bicycle repair instruction to 100+ individuals November 2012 – present
Created course materials and taught formal 4 session bicycle maintenance course, 4 times
- Tutor, Alfred University, Alfred, NY Fall 2010 – Fall 2011
Intro to Glass, Electrical Engineering Lab, Structures and Properties, Thermal and Mechanical Properties
- Coach, Alfred University Track and Field – Long and Triple Jump Fall 2010 – Fall 2011