JOSH PINDER RESUME

Researcher | Surface Analysis | Academic Mentor

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EXPERIENCE

PhD Candidate
Brigham Young University

📅 08/2021 - Present 📍 Provo, United States

- Operated and maintained a high-precision, research-grade atomic layer deposition (ALD) reactor, gaining hands-on experience with a complex sensor-controlled system. Repeatedly assembled, disassembled, and optimized system components to ensure reliable performance.
- Created a custom MATLAB-based graphical user interface (GUI) to streamline reactor operation and improve user experience, allowing for more efficient and intuitive control over deposition processes.
- Diagnosed and resolved system performance issues by analyzing sensor data and thin-film outputs, using data-driven methods to guide troubleshooting and enhance film quality.
- Led material development projects in collaboration with industry partner Restek, designing and executing experiments to support chromatographic applications.
- Applied MATLAB for signal processing, data visualization, and experimental optimization, supporting data-informed decisions across projects.
- Presented technical work at the American Vacuum Society (AVS) Conference and the International Symposium on Chromatography, communicating results to audiences ranging from technical experts to general attendees.
- Coordinated international research efforts with collaborators in over 15 countries and mentored undergraduate and graduate students in surface analysis techniques and instrumentation.

Academic Advisor
BYU-Idaho Advising Center

📅 04/2018 - 01/2019 📍 Location

- Supported academic success and student advising while balancing coursework and academic responsibilities

Office Worker
Back to Health Chiropractic

📅 04/2017 - 08/2017 📍 Location

- Managed office tasks and customer interactions, contributing to the business's operations during the summer break to support academic goals

Volunteer
LDS Missionary

📅 06/2014 - 06/2016 📍 Quintana Roo Mexico

- Dedicated two years to full-time service as a missionary, teaching and supporting individuals in alignment with the principles of The Church of Jesus Christ of Latter-day Saints

Car detailing
Supersonic Car Wash

📅 06/2013 - 12/2013 📍 Orem Utah

EDUCATION

Ph.D. Candidate in Chemistry
Brigham Young University

📅 08/2021 - Present 📍 Provo, United States

- Research focus: Surface analysis techniques (XPS,LEIS), thin-film deposition (ALD)
- PVD), and chromatography materials development

Talmage Research Intern
Brigham Young University

📅 06/2021 - 08/2021 📍 Provo, United States

- Designed and developed microfluidic devices to separate key pre-term birth Biomarkers

Bachelor of Science in Chemistry
Brigham Young University-Idaho

📅 01/2021 - 01/2021 📍 Rexburg, United States

- Minor in Biology, Brigham Young University-Idaho
- Conducted Torion T/9 GC-MS sample analysis, exploring potential application notes

SUMMARY

PhD Candidate | Sensor-Based Systems | Data Analysis & Troubleshooting

Analytical and hands-on PhD Candidate in Chemistry with extensive experience operating and optimizing sensor-based systems, particularly atomic layer deposition (ALD) reactors. Skilled in troubleshooting complex technical problems and using data-driven approaches to guide experimental outcomes. Proven ability to lead collaborative research efforts, coordinate international research projects, and mentor students in laboratory settings. Experienced MATLAB user with knowledge of signal processing and performance evaluation. Effective communicator across technical and leadership levels, with a strong track record of problem-solving and cross-disciplinary collaboration.

SKILLS

MATLAB   Project Management   ALD   GUI

Scientific Writing   XPS   LEIS   SE

Scientific Figures

KEY ACHIEVEMENTS

💎 **Sensor-Based System Expertise:**
Operated and optimized an advanced ALD reactor system; improved functionality and usability through custom MATLAB GUI development.

💎 **Technical Troubleshooting:**
Applied sensor data analysis and signal evaluation to identify and resolve complex system issues, improving performance and reproducibility.

💎 **Data-Driven Development:**
Leveraged MATLAB to implement signal processing routines and experimental optimization for thin-film material research.

💎 **Collaborative Leadership:**
Managed cross-functional research projects and international collaborations, ensuring effective coordination and problem-solving across teams

💎 **Effective Mentorship & Communication:**
Trained students in instrumentation and data interpretation; delivered conference presentations that bridged technical depth and broad accessibility.

KEY PUBLICATIONS

Avoiding common errors in X-ray photoelectron spectroscopy data collection and analysis, and properly reporting instrument parameters

Applied Surface Science Advances

J.W. Pinder, G.H. Major, D.R. Baer, J. Terry, J.E. Whitten, J. Čechal, J.D. Crossman, A.J. Lizarbe, S. Jafari, C.D. Easton, J. Baltrusaitis, M.A. van Spronsen, M.R. Linford

A practical guide to interpreting low energy ion scattering (LEIS) spectra

Applied Surface Science

S. Průša, M.R. Linford, E. Vaníčková, P. Bábík, J.W. Pinder, T. Šikola, H.H. Brongersma

EXPERTISE

Atomic Layer Deposition (ALD) & Physical Vapor Deposition (PVD)
Hands-on experience in thin film growth, utilizing ALD and PVD to engineer precise coatings and thin layers with controlled properties for material and surface applications

X-ray Photoelectron Spectroscopy (XPS)
Proficient in utilizing XPS for detailed surface chemical analysis, including chemical state, and depth profiling, with an emphasis on material characterization

Low-Energy Ion Scattering (LEIS)
Skilled in using LEIS for high-resolution surface analysis, providing insight into the atomic composition and structure of atomically thin films and surface modifications

Spectroscopic Ellipsometry (SE)
Experienced in employing SE for precise measurements of film thickness, refractive index, and optical constants, enabling in-depth analysis of thin films and multi-layered structures

REFERENCES

Matthew Linford (Brigham Young University)
+1 (801) 376-9340, matthew.linford@byu.edu

David Bell (Director of Applied R&D, Phiex Technologies)
+1 (814) 482-1161, Askkprime@gmail.com

INTERESTS

Family-oriented

Avid skier

Fitness

Food

LANGUAGES

English
Native
●●●●●

Spanish
Advanced
●●●○○