Exponent®
Engineering & Scientific Consulting

Olivia Lenz, Ph.D.

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Professional Profile

Dr. Lenz is a materials scientist with extensive knowledge and experience in materials chemistry, especially in understanding the structure-property relationships to optimize material performance and assess failure. She is skilled in designing materials to meet desired product performance metrics and has broad expertise in characterizing fundamental material properties that influence a product's behavior in various environments. Dr. Lenz applies her expertise in material synthesis, characterization, and analytical method development to support clients across diverse material families, such as polymers, ceramics, and semiconductors.

Dr. Lenz has comprehensive experience in materials characterization, covering both bulk and surface properties. Her expertise includes Fourier transform infrared spectroscopy (FTIR), Raman spectroscopy, x-ray fluorescence (XRF), thermogravimetric analysis (TGA), solid-state nuclear magnetic resonance spectroscopy (SS-NMR), atomic absorption spectroscopy (AAS), inductively coupled plasma spectroscopy (ICP), scanning electron microscopy (SEM), transmission electron microscopy (TEM), x-ray photoelectron spectroscopy (XPS), x-ray diffraction (XRD), electrochemical impedance spectroscopy (EIS), and solar cell characterization under AM0 and AM1.5 conditions. She has applied these skills in a variety of applications, including energy, water, environmental remediation (including contaminants of concern such as PFAS), and construction materials.

Before joining Exponent, Dr. Lenz worked as a Staff Research Engineer at Membrion, a deep-tech startup firm developing a ceramic ion-exchange membrane for water treatment through electro-ceramic desalination. There, she helped develop the core membrane technology from initial concept to a consumer-ready product. She also managed a $1.3 million DOE SBIR project in partnership with the National Renewable Energy Laboratory to develop an in-line membrane quality control inspection system. Prior to her role at Membrion, Dr. Lenz gained experience at NASA Glenn’s Photovoltaics and Power Systems Branch and NASA Ames’s Science Directorate.

Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of Washington, 2017

M.S., Materials Science and Engineering, University of Washington, 2013

B.S., Chemistry, Seattle Pacific University, 2011

NASA Space Technology Research Fellow, 2012-2016

NSF Graduate Research Fellowship (declined), 2012

Seattle Pacific University Wes Lingren Award Winner (Top Honors Student), 2011

Academic Appointments

Adjunct Faculty, Chemistry, Seattle Pacific University, 2017-2018

Prior Experience

Staff Research Engineer; Membrion, Inc., 2023 - 2024

Senior Research Engineer; Membrion, Inc., 2021 - 2023

Research Engineer; Membrion, Inc., 2018 – 2021

Professional Affiliations

2023 – present, Association for Women in Science

Patents

US11198101B2: Ceramic cation exchange materials, December 2021 (Newbloom GM, Lenz OM, Pickett PR, Malone RA, Candelaria SL, Zhang Y, Corp KL, Salunkhe AA, Canin MJ).

US20200388871A1: Ceramic anion exchange materials, January 2021 (Newbloom GM, Lenz OM, Pickett PR, Malone RA, Candelaria SL, Zhang Y, Corp KL, Salunkhe AA)

WO2023107629A1: Materials for the capture of substances, December 2022 (Newbloom GM, Lenz OM, Cave, E)

WO2024015277A1: Ceramic ion exchange materials with hydrophobic groups, January 2024, (Lenz OM, Candelaria SL, Rabe EJ)

Publications

Henckel DA, Lenz OM, Krishnan KM, Cossairt BM. Improved HER Catalysis through Facile, Aqueous Electrochemical Activation of Nanoscale WSe2. Nano Lett. 2018 Apr 11;18(4):2329-2335. DOI: 10.1021/acs.nanolett.7b05213

Lenz OM, Henckel DA, Cossairt BM. Effect of Ligand Coverage on Hydrogen Evolution Catalyzed by Colloidal WSe2. ACS Catalysis. 2017 March 16; 7(4):2815. DOI: 10.1021/acscatal.7b00074