

# Lyle M. Gordon

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Passionate materials scientist and characterization expert seeking to explore new challenges with a team of engineers in materials synthesis and characterization. Driven to contribute toward the success of the team and rapidly advance new products and shape the company's vision for advanced materials.

## Accomplishments

- Materials scientist/engineer with 15+ years of experience advanced characterization experience, including EBSD, EM, XRD, atom probe, optical microscopy, chemical analysis, and custom instrumentation.
- Built and recruited a team of R&D engineers, managed multiple projects and 8-10 reports simultaneously, provided direction and vision for the company in a diverse, dynamic, and fast paced environment.
- Expert at solving technically challenging problems and identifying solutions and techniques required for materials/product development at laboratory and industrial scales.

## Experience

- 2021- **Staff Materials Engineer**, Redwood Materials, Reno, NV.
- Designed and built the characterization & failure analysis lab, procured instrumentation, and managed the technical team to support the first domestic production plant.
  - Led laboratory and inline characterization evaluating microstructure, chemistry, and surface finish of copper foils.
  - Developed expertise in new areas as needed, such as chemical analysis and liquid chromatography-mass spectrometry of organic contaminants in electroplating baths.
  - Supported diverse characterization needs for raw materials/feedstock, sustainable metals extraction, and recycling across the company for a closed loop supply chain.
  - Defined product specifications; clarified critical product, process, and feedstock requirements.
- 2016-2021 **Nano Precision Medical**, Emeryville, CA.
- 2019 **Promoted to Director of Research and Development**
- Recruited, managed, and mentored the R&D team to develop, scale up and characterize anodic titanium oxide nanotube membranes and polymeric stabilizers for a drug delivery implant. Aligned group towards human and animal clinical trials.
  - Successfully led 8-10 reports to scale manufacturing from single devices to wafer scale production in a timely manner with continual improvement of processes. Drove corrective actions, risk-assessments and root causes analysis.
  - Identified characterization & failure analysis needs (metallurgical, ceramic, polymeric), built/purchased required instrumentation, and contracted external labs as needed.
  - Worked cross-functionally (manufacturing/operations/quality/regulatory) through successful prototypes and clinical trials, and provided expertise to multiple departments.
- 2019 **Promoted to Manager**, Process Research and Development
- Directly managed projects, engineers, scientists and technicians within process research group; fostered cross-functional projects and collaborations.
  - Drove efforts to engineer cross-linked polymer excipients for drug stabilization.
  - Served as acting director of manufacturing, optimized manufacturing processes and documentation for clinical trials.
- 2017 **Promoted to Senior Scientist**
- Solved materials science and engineering problems, including failure analysis and troubleshooting manufacturing, to support product development.
  - Led evaluation of titanium substrates to elucidate impact on anodized nanotube membrane and yield.

- Added capabilities to the characterization laboratory, including optical coherence tomography and custom rheology tools.

2016 **Materials Scientist**

- Subject matter expert for characterization of nanoporous anodized titanium membranes.
- Designed and constructed custom porosimetry instrumentation.

2014-2016 **W.R. Wiley Distinguished Postdoctoral Fellow**, Microscopy Group, Environmental Molecular Sciences Lab Pacific Northwest National Laboratory, Richland, WA.

- Performed advanced materials characterization for multiple collaborative projects with internal and external users.
- Independently developed a model system for *in situ* characterization of atmospheric ice nucleation using vibrational spectroscopy and environmental transmission electron microscopy.

2008-2014 **PhD Candidate**, Biomineral Engineering Group, Materials Science and Engineering Northwestern University, Evanston, IL.

- Elucidated the nanostructure and chemistry of organic-inorganic interfaces in mineralized biological tissues (teeth, bone and eyes). Communicated results in leading scientific journals.
- Using atom probe tomography and X-ray spectroscopy, discovered role of amorphous intergranular phases on physicochemical properties of tooth enamel and fluoride diffusion.

2007-2008 **Researcher**, Hybrid Materials Group University of Toronto, Materials Science and Engineering Toronto, Canada.

- Designed, fabricated and characterized a microscale periodic cellular material using 3D printed polymer and pulsed electrodeposition of nanocrystalline nickel.

## Education

**PhD**, Materials Science and Engineering, *Northwestern University*. Evanston, IL.

**B.A.Sc.**, Materials Science and Engineering, *University of Toronto*. Toronto, Canada.

## Selected Peer Reviewed Publications

**Gordon, L.M.**, Cohen, M.J., MacRenaris, K., Pasteris, J.D., Seda, T., Joester, D. “Amorphous Intergranular Phases Control the Properties of Tooth Enamel.” *Science* 347, 6223 (2015).

**Gordon, L.M.**, Joester, D. “Nano-Scale Chemical Tomography of Buried Organic-Inorganic Interfaces in the Chiton Tooth.” *Nature* 469, 194-197 (2011).

## Patents

**Gordon, L.M.**, Olf, R., Roorda, W. “Methods to control the rate of release of therapeutic agents from implantable devices” Nano Precision Medical, US20220008345A1 *Patent Pending*