Allison Enright

Microbial Geochemist

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Publications

am-enright

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About me

* I am an expert in complex problem solving, and as a geochemist and researcher, I design bespoke environmental monitoring technology to provide real-time data from the site, automate most data collection, and reduce the need for lab-based off site analysis.

* My background includes instrument design and prototyping, electrochemistry, sensor-based data collection, UV-vis spectroscopy, microbiology, geochemical and geophysical modelling, and signal processing.

Education

2015 University of Toronto PhD
Microbial geochemistry
- Thesis: Fluctuation Analysis of Oxidation-Reduction Potential in Circumneutral pH Iron-Oxidizing Microbial Systems
- In situ electrochemical characterization of biogeochemical reaction pathways

2011 University of Toronto MSc
Geodynamics
- Thesis: Mechanisms of Extension in Eastern Anatolia
- Finite element modelling of tectonic processes

2010 University of Ottawa BSc Hons.
Geology
- Thesis: Trace element chemistry of Thelon Formation fluroapatite cements

Work Experience

2020–now Assistant Professor, Environmental Geochemistry
University of New Brunswick
- Monitoring the effectiveness of remediation treatments is expensive, labour intensive, and has high uncertainty. I designed a sensor-based, in situ methods to get better quality, real-time information about critical biogeochemical processes. This technology is expected to reduce the timeline for assessing treatment effectiveness by at least 75%.
- Wrote and submitted proposals to federal, provincial, and local grant agencies, and was awarded over $680k in research funding.
- Using funds leveraged from successful grants, I renovated an asbestos-filled, unmaintained lab space, purchased all the necessary equipment and instrumentation to carry out my research, and completed the first biosafety certification in my building to undertake microbial experiments.
- Directed research carried out by 14 trainees by designing experiments, demonstrating and supervising lab and field techniques, advising on data collection, and collaborating on data analysis and communication of results
- Designed one general geoscience and four specialist geochemistry courses for in-person and virtual delivery to over 300 undergraduate and graduate students.

2019 Postdoctoral Scientist, Early-Earth oceanic microbiology
University of Tuebingen
- Designed and coordinated a five-person team to perform early-Earth analog anaerobic sterilization experiments using a combination of microbial, mineralogical, and geochemical techniques.

2016–2018 Postdoctoral Scientist, Astrobiology and life detection
Rutgers University
- Designed and performed experiments to isolate biological influences on physical and chemical sensor measurements (i.e., biosignatures) contributing to the development of the only reliable agnostic extant-life bio signature discovered to date.

2015–2016 Postdoctoral Scientist, Biogeophysics
Oklahoma State University
- Designed and performed lab-based geophysical measurements targetting biological processes.