



Graduate Student Position: Particle Dynamics and Dissolution in Marine Carbon Dioxide Removal

We are pleased to announce a funded graduate student position (MSc or PhD) focused on advancing Marine Carbon Dioxide Removal (mCDR), with a preferred start date in Spring 2026 or Fall 2026. The research will focus on predicting the fate of discharged alkaline minerals and their dissolution rates in the ocean for monitoring and verification purposes. This work is critical for the durable implementation of mCDR. The successful candidate will be co-advised by Prof. Kristin Poduska at Memorial University and Prof. Adam Jiankang Yang at Dalhousie University.

Research Background:

Global average temperatures were 1.1 °C warmer in 2011–2020 compared to the 1850–1900 baseline and are likely to surpass the 1.5 °C warming threshold in the coming years. Mitigation not only requires significant reductions in carbon emissions but also the implementation of effective carbon dioxide removal strategies. One promising approach involves adding milled mineral particles to the ocean's surface to facilitate atmospheric CO₂ removal as the particles dissolve in seawater. Once in seawater, these minerals neutralize excess carbonic acid and convert dissolved CO₂ into stable bicarbonate and carbonate, enabling long-term carbon sequestration over thousands of years. This research aims to address critical scientific questions regarding the dynamics and dissolution of mineral particles in the ocean for CO₂ removal.

This position will be funded for 2 years (MSc) or 4 years (PhD), including stipend and research support. We encourage motivated and creative applicants with:

- a graduate or undergraduate degree in physics, physical oceanography, chemistry, engineering, mathematics, or a related discipline and have a history of academic excellence.
- experience and/or desire to learn statistical analysis.
- an ability to work in a collaborative team environment.
- international students with English language proficiency (i.e., at least TOEFL iBT=92, IELTS= 7, or equivalent)
- Preferred: knowledge of programming (e.g., Python, MATLAB) and/or laboratory experience.

Location:

The research will be conducted at both the Department of Physics and Physical Oceanography at Memorial University of Newfoundland & Labrador, and in the Department of Civil and Resource Engineering at Dalhousie University. The successful applicant will be based at one of these Universities (Memorial for Chemistry or Physics applicants; Dalhousie for Engineering applicants), based on their academic background.



Equity, diversity, and inclusion:

Our team is committed to an inclusive, supportive research environment.

We welcome applications from candidates of all backgrounds, including those who identify as women, 2SLGBTQIA+, Indigenous, Black, racialized, disabled, first-generation students, and others from groups historically underrepresented in STEM. For recruitment, we do not pre-screen solely on GPA or prior research experience; we are particularly interested in your curiosity, perseverance, and alignment with the project.

If you require accommodations during the application or interview process, please indicate this in your email and we will work with you to support a fair process.

How to Apply:

Interested candidates should send their CV, contact information for two referees, and a brief statement of research interests to Dr. Kristin Poduska (kris@mun.ca) or Dr. Adam Jiankang Yang (jiankang.yang@dal.ca). Applications will be reviewed as they are received, and shortlisted candidates will be invited for an online interview.