

## NOMATEN Hybrid Seminar

**Location:** NOMATEN seminar room

**gotomeeting room (for online):** <https://meet.goto.com/NCBJmeetings/nomaten-seminar>

**Seminar date:** February 27th, 2025

**Time:** 10 AM (CET)

**Speaker name:** Dr. Madeline Jayne Dressel

**Speaker affiliation:** Protochips, USA

**Title:** In Situ Liquid Transmission Electron Microscopy: A Unique Tool for Investigating Corrosion Processes at the Nanoscale

**Abstract:** Technological advancements in resolution, elemental analysis, and sample preparation have established transmission electron microscopy (TEM) as an indispensable tool for studying the structure and composition of a wide range of materials. When combined with modern, specialized in-situ systems, TEM can effectively function as a real-time nanoscale laboratory, enabling direct observation of processes such as growth, degradation, and particle interactions with resolutions down to a few nanometers. This presentation will highlight the achievements, research, and capabilities of the in-situ liquid system: Poseidon. It will also explore how studies in the field of corrosion (and beyond) have been conducted, contributing to a deeper understanding of the mechanisms governing material properties at the macro scale.

**Bio:** Dr. Madeline Dressel Dukes – Senior Application Specialist at Protochips in the field of in-situ liquid TEM, earned her Ph.D. in Chemistry from Vanderbilt University in Nashville, Tennessee (USA). Her doctoral research was conducted under the guidance of one of the pioneers in liquid-phase electron microscopy, Prof. Niels de Jonge. Since 2011, she has been a part of the Protochips team, supporting and advancing experimental and research procedures while regularly collaborating with in-situ liquid-cell technology users worldwide to develop and test new techniques and instruments for liquid-phase electron microscopy.