

# Seminar

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**Thursday, December 12, 2019  
HH-3017, 2-3pm**

## ***Adaptive Numerical Simulation of Pitting Corrosion***

### **Abstract:**

The goal of this talk is to formulate, implement and analyze adaptive algorithms for the simulation of corrosion processes and in particular improve the numerical simulation of PDE based models of pitting corrosion. We solve a PDE based model for pitting corrosion using an adaptive moving mesh method. The Finite Element Method (FEM) is used for discretization and a solver is built upon the software MMPDElab. An adaptive moving mesh is used to get sufficient mesh elements in the pit using an alternating mesh and physical solution approach. Movement of the corner nodes of the pit and choosing a monitor function are challenging tasks. We propose three techniques of pit movements strategies and a different number of monitor functions to produce mesh points around the corrosion front region. Preliminary numerical results which demonstrate this will be shown. The electrolyte potential, the evolution of the corrosion pit, pit-depth and width are computed for different times.