

THE MATERIALS SCIENCE AND ENGINEERING DEPARTMENT
FALL COLLOQUIUM SERIES PRESENTS:

Morris E. Fine Lecture: Frances M. Ross

Professor of Department of Materials Science and Engineering

Massachusetts Institute of Technology



Microscopy in Motion: Understanding how crystals grow through electron microscopy movies

We can watch crystals grow and change in an electron microscope by adding atoms one at a time onto a clean surface in vacuum, or by driving them into place using an electrochemical stimulus applied in a liquid medium. The movies tell us a lot about the physical phenomena that are involved during growth, but are also entertaining, frustrating, or both at the same time. I would like to share the joy of this type of “in situ” microscopy as we aim to understand how atoms assemble into nanoscale crystals and use the information to control the formation of more complicated nanostructures whose properties may make them useful for new types of electronic devices, batteries or catalysts.

Frances M. Ross is a faculty member at the Department of Materials Science and Engineering at the Massachusetts Institute of Technology in Cambridge, MA, USA. She received her B.A. in Physics and Ph.D. in Materials Science from Cambridge University, UK, where she became captivated by electron microscopy. She continued this interest during her postdoc at A.T.&T. Bell Laboratories, as a Staff Scientist at the National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, and as a Research Staff Member at the IBM T. J. Watson Research Center. Her research is based around the development of in situ electron microscopy techniques to help understand crystal growth, epitaxy, self-assembly and electrochemical and other liquid phase processes.

Tuesday, October 10 • 4 pm CT • Tech L211

In person only; no Zoom

Questions? Contact allison.macknick@northwestern.edu