**Cu Surface Modification by Nanofilm Deposition**

Ben McDonald, Tianhong Cui (PI)

Mechanical Engineering, University of Minnesota

NNIN Facilities utilized: Characterization Facility & Nanofabrication Center

---

**Layer-by-Layer Self Assembly**

- Electrostatic adhesion is used to build thin films from nanoparticles.
- TiO$_2$ is especially useful due to its tunable properties.
- Hydrophilicity of TiO$_2$ films can be altered in several ways, including by exposure to heat or UV radiation.

**Liquid Phase Deposition**

- Break Ti from (NH$_4$)$_2$TiF$_6$, TiF$_4$, or other precursor molecules.
- Form TiO$_2$ nanoparticles through chemical reactions in the liquid phase.
- Deposit TiO$_2$ nanoparticles on surface according to self-assembly techniques.