

**PROBING SURFACE REACTION
KINETICS AND IONIC DIFFUSION
WITH SOLID STATE NANOPORES**

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4:00 P.M. NSH 184

Recent progress in creating nanodevices has important consequences both for technology and for scientific inquiry. One nanoscale device of particular interest is the solid state nanopore, which is a promising platform for next-generation DNA sequencing strategies. Nanopores are also useful for measuring the kinetics of fast processes; by observing the fluctuations in the electrolytic conductance of a solid state nanopore, I have identified two sources of noise corresponding to ionic motion and reaction. Noise from ionic diffusion through the nanopore provides a unique look into ionic motion in electrolytes but interferes with nanopore-based DNA sequencing strategies. I will also report the first measurement of silanol protonization kinetics, demonstrating that nanopores are sensitive not only to average surface properties, but also to the dynamics of surface charge states.

**Condensed
Matter
Seminar**

**All interested
persons are
cordially
invited to
attend.**