Stimuli Responsive Surfaces

H Canavan, G Lopez, J Curro, A Chilkoti, A Wandinger Ness (ONR, SNL, 3M, NSF)

Biofilm of *Staphylococcus epidermidis* is released upon interfacial phase transition

Poly(N-isopropylacrylamide) (PNIPAAm)

\[
\left\{ \begin{array}{c}
\text{CH}_2 - \text{CH} \\
\text{C} = \text{O} \\
\text{NH} \\
\text{CH} \\
\text{CH}_3 \\
\text{CH}_3
\end{array} \right\}_n
\]

- LCST in water at “32°C”

- Understanding Smart Polymer Brushes
  - SPR
  - Neutron Reflectivity
  - Self-Consistent Field Theory

- Control of Adsorption
  - Control of Cell Adhesion
  - Protein and Gas Adsorption

- Controlled Molecular Transport
  - Switchable Porous Membranes
  - Switchable Delivery from Beads