Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Interfacial Characteristics of a Potentially Anti-befouling Highly Rigid Ionomer CHRISTOPHER J. CORNELIUS, CY H. FUJIMOTO, Sandia National Laboratories, MS 0886, Albuquerque, New Mexico 87185-0886, LILIN HE, DVORA PERAHIA, Department of Chemistry, Clemson University, Clemson, SC 29634 — Ionic polymers with a potential to form a water purification membrane inhibit biofouling activity. The onset of biofouling involves release of polysaccharides by bacteria that adhere to the membrane surface, serve as bedding and nutrients and allow further bacterial growth. This stage is controlled by the interfacial energy and morphology of the membranes. It is often followed by irreversible structural changes, as fouling propagates. The surface energy as a function of time of contact with water of sulfonated substituted *para*phenylenes was studied as a first step in understanding the mechanism of adhesion of bacteria to the membrane. Surface energies increase with increasing exposure times of the membranes with water, indicative of rearrangements in which more sulfonated groups migrate to the surface. Ongoing studies are currently on the way to correlate adhesion of alginate, a model polysaccharide and the interfacial characteristics of the membranes.

Dvora Perahia
Clemson University

Date submitted: 30 Nov 2006 Electronic form version 1.4