Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Competitive Adsorption, Exchange and Binding of Polymers and Proteins at the Oil/Water Interface DANIEL CARVAJAL, KENNETH SHULL, IGAL SZLEIFER, Northwestern University — Drop Shape Analysis (DSA) of pendant drops was used to study competitive adsorption, exchange kinetics and binding of macromolecules at the oil/water interface. Amphiphilic diblock and triblock copolymers were dissolved in the oil drop phase, while proteins were added to the water subphase. By using DSA to monitor the interfacial tension of the system, we were able to gather data on how the polymers and proteins are behaving and interacting at the oil/water interface. Some polymer systems were found to fully inhibit both specific and non-specific adsorption of proteins to the interface. Adding biological receptors to these polymers allowed us to study the specific binding of proteins to polymers located at the interface. In other systems, proteins were able to penetrate the amphiphilic block copolymer layer and reach the interface. The dynamics of exchange and competitive adsorption in these polymer/protein systems were also studied.

Daniel Carvajal
Northwestern University

Date submitted: 27 Nov 2007 Electronic form version 1.4