Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Syntactomer Peptide Assembly on Deformable Silicone Elastomer Surfaces JULIE N. L. ALBERT, JAN GENZER, North Carolina State University, Chemical and Biomolecular Engineering — Surfaces of biocompatible poly(vinylmethylsiloxane) (PVMS) networks can be functionalized readily through modification of pendent vinyl groups. In this work, we also took advantage of network elasticity to examine how the conformation of surface-grafted peptides depended on their grafting density (i.e., the areal density of peptides). PVMS networks were cross-linked via reactive end groups, leaving the pendent vinyl groups available for peptide attachment via a carboxylic acid terminated thiol linker. To control grafting density, the networks were stretched uniaxially up to ≈30% strain during the attachment of the thiol linker (via thiol-ene click chemistry) and the peptide (via sulfo-NHS/EDC coupling chemistry). After deposition, the strain was released. The resultant peptide-modified PVMS networks were imaged using scanning probe microscopy. The specific peptides of interest are called "syntactomers" because they are made up of repeating amino acid sequences much like a polymer is made up of repeating monomer units. In solution, these peptides display interesting pH-sensitive LCST and UCST phase behaviors that may impart surfaces with pH- and temperature-responsiveness in addition to biocompatibility.

Julie N. L. Albert
North Carolina State University, Chemical and Biomolecular Engineering

Date submitted: 07 Nov 2012 Electronic form version 1.4