Abstract Submitted
for the FWS17 Meeting of
The American Physical Society

Thermal Reflow Method for the Fabrication of PDMS Molds to investigate of Microtubule Tracking DIMITRIUS KHALADJ, UC Merced — With the growing interest in studying protein or macro-molecule mobility, the creation of modified surfaces has been an increasingly important component of active matter studies. Modified surfaces can be developed using a simple single patterned structure with the use of photo-lithography. We present a thermal reflow method for the creation of curved dome-like structures from fabricated cylinders developed using a mylar photomask. The initial cylinders are formed from a single exposure onto a positive tone photoresist (AZ P4620) spun onto a 4 inch Silicon wafer. After development, the wafer is placed on a hotplate at 150C for 2 minutes to induce photoresist reflow. Result show 8(1)m thick domes with diameters less than 300m. Larger diameters were not able to reflow. Once cooled, a PDMS mold is placed over the structures to produce the bowls to be used as a surface for Microtubule gliding. Bowl depths were recorded as 8(1)m, true to size of their dome counterparts. In terms of reliability, the dome structures can be used multiple times for repeated use without loss of quality. We demonstrate microtubule gliding on these novel substrates as a proof of concept.

Dimitrius Khaladj
UC Merced

Date submitted: 30 Sep 2017 Electronic form version 1.4