

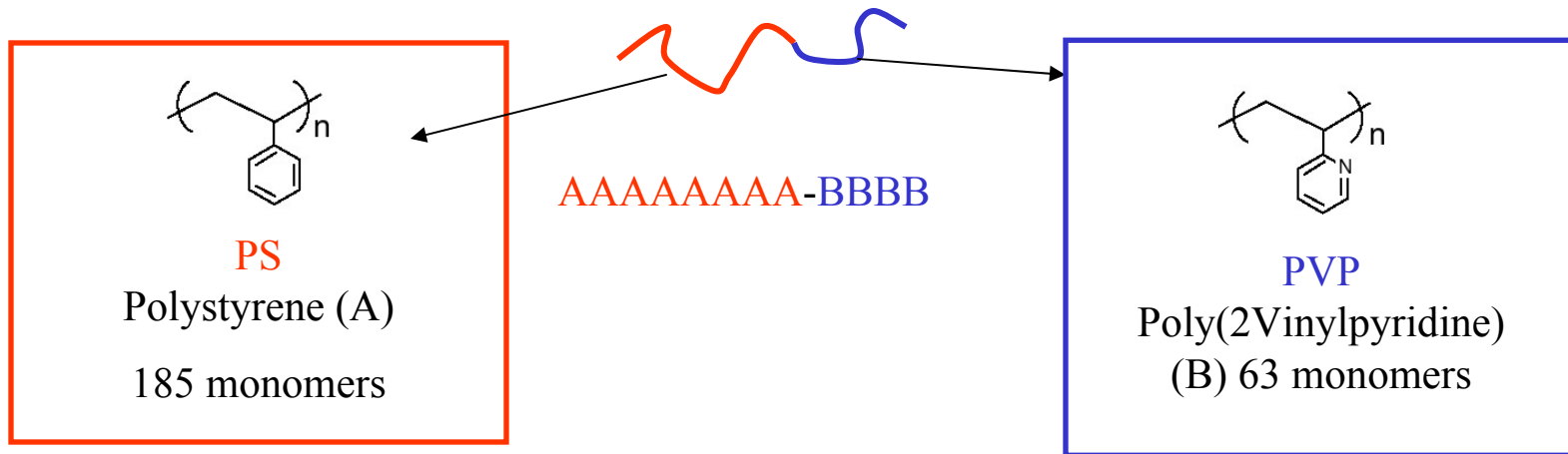
Controlling the Orientation of Cylinder Forming Block Copolymers

David Statti, Matthew Hammond (Mentor),
Professor Edward J. Kramer

Department of Materials, UCSB

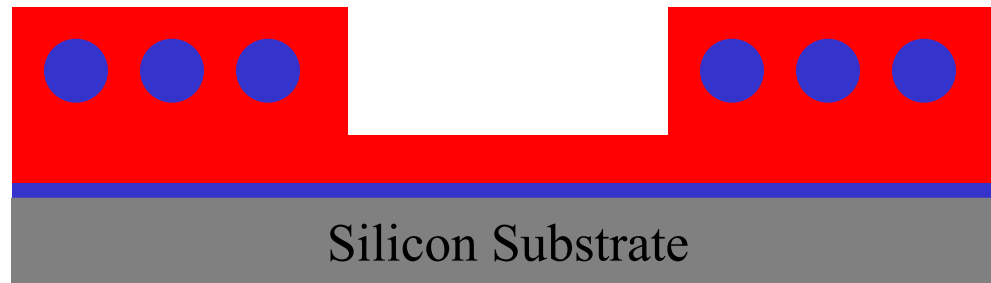
Funded by the National Science Foundation, Department
of Materials Research

Cylinder Forming Block Copolymers




- Cylinders (PVP), surrounded by PS.

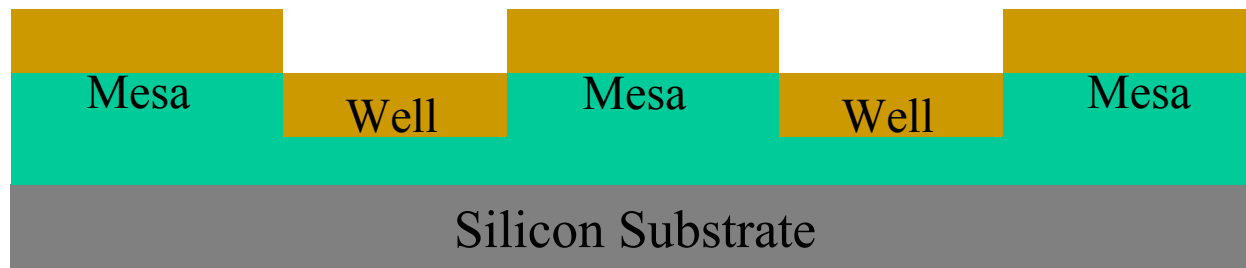
Island and Hole Formation



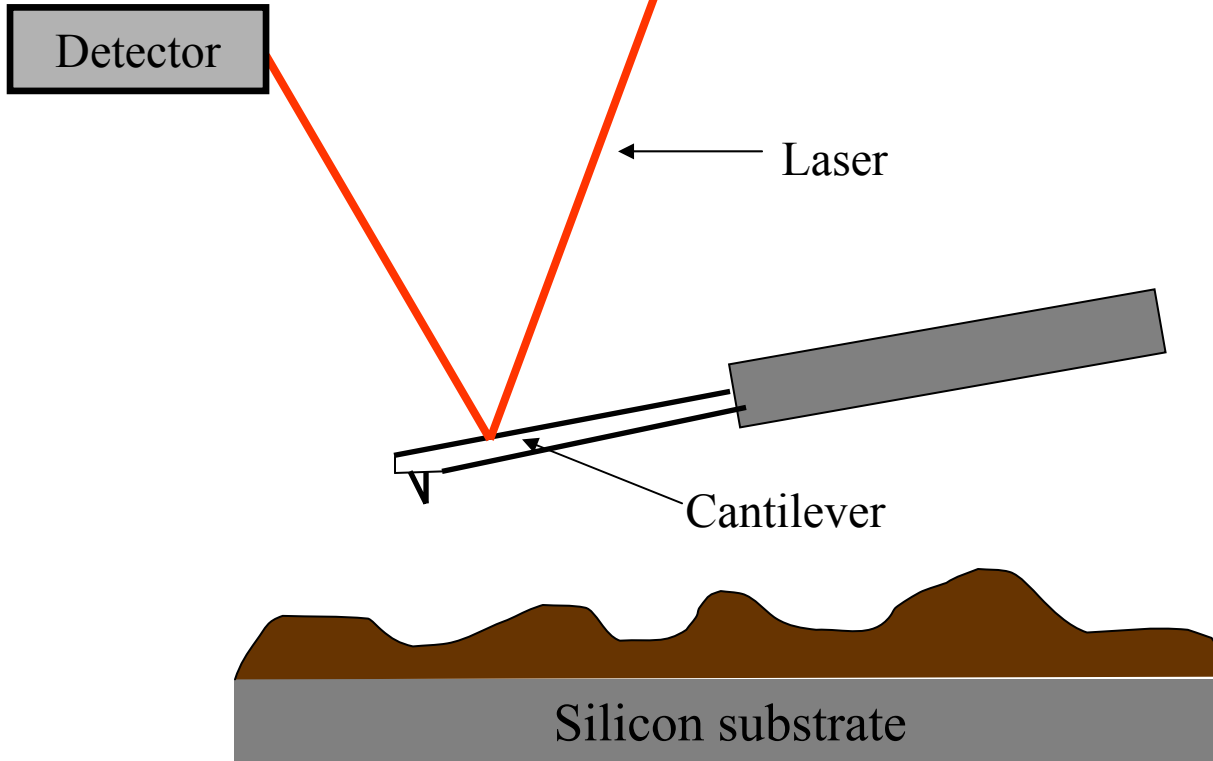
Cross Section of Patterned Silicon Substrate

 Layer of Copolymer

 SiO₂

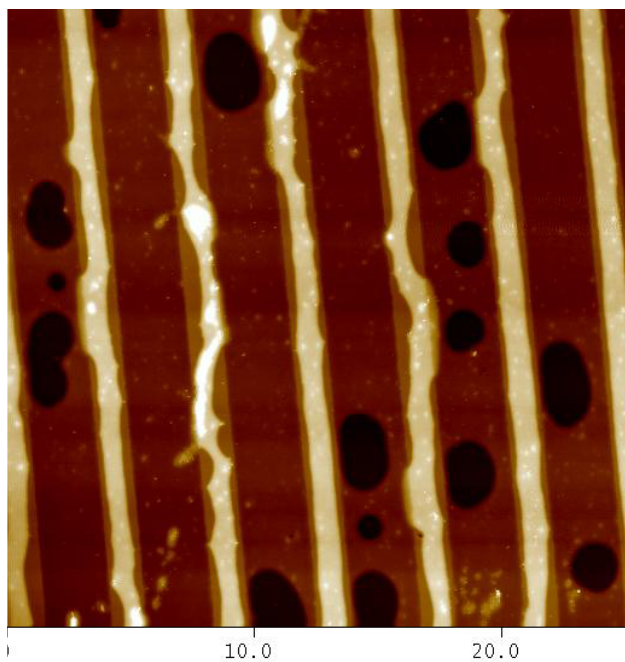


Atomic force Microscopy (AFM)

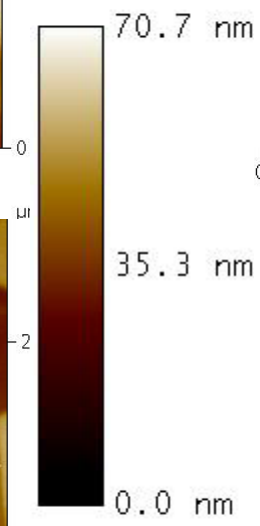
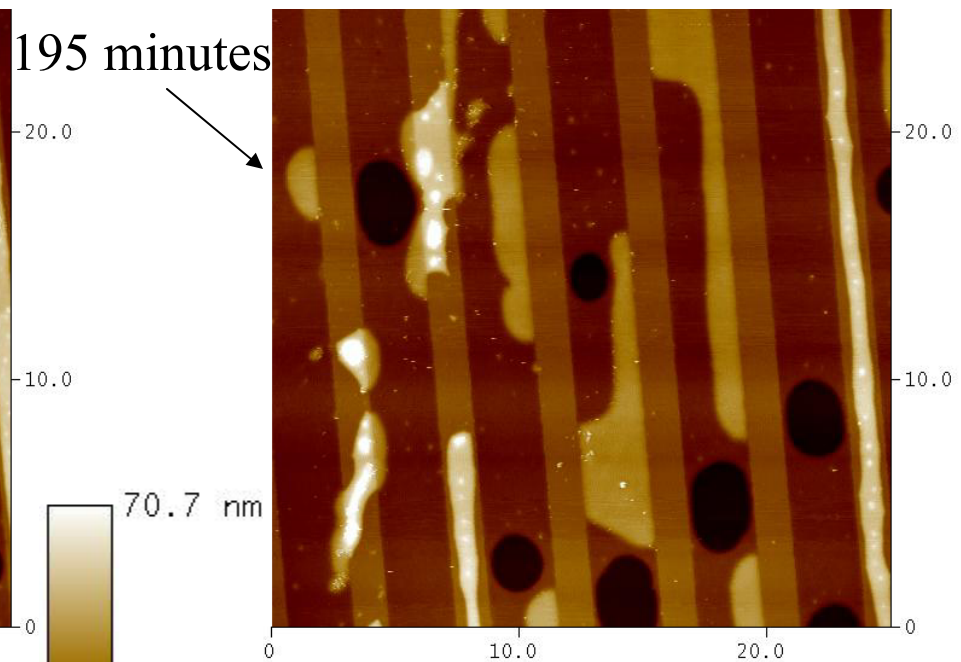


- Cantilever taps on sample surface.
- Laser deflects off cantilever and into detector, measuring changes in amplitude.
- Computer translates into topographical image.

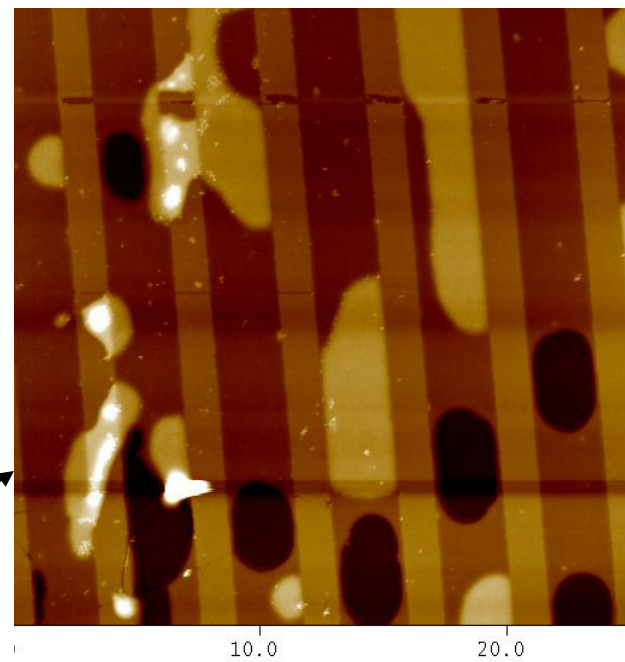
8 minutes



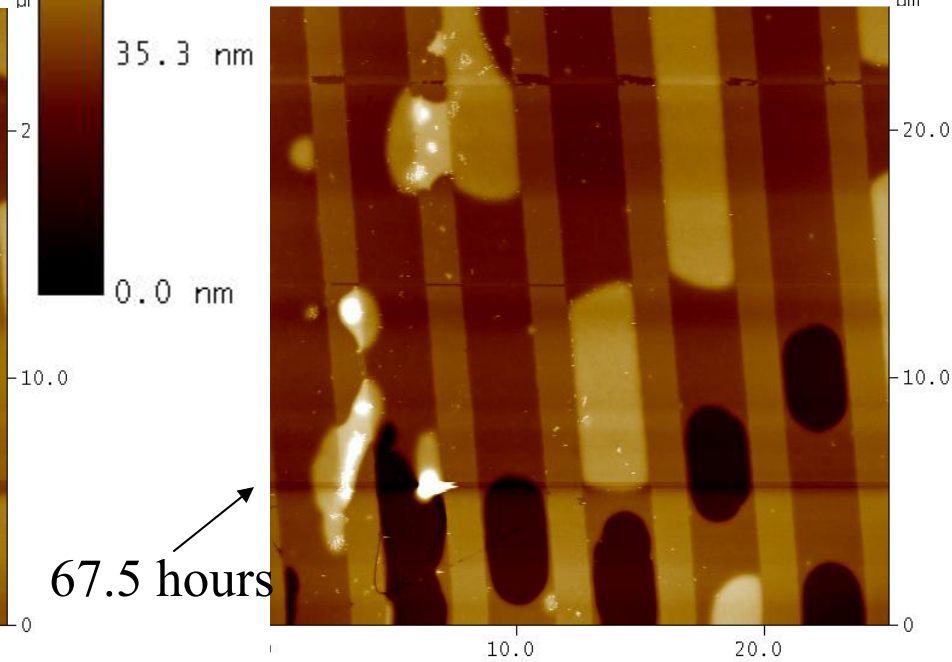
195 minutes



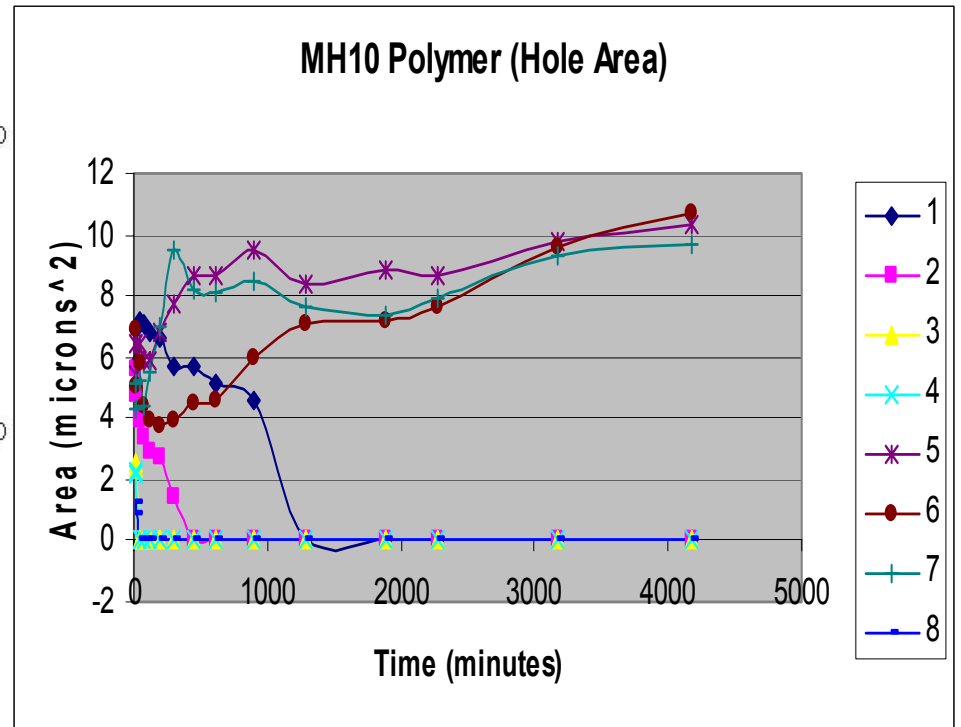
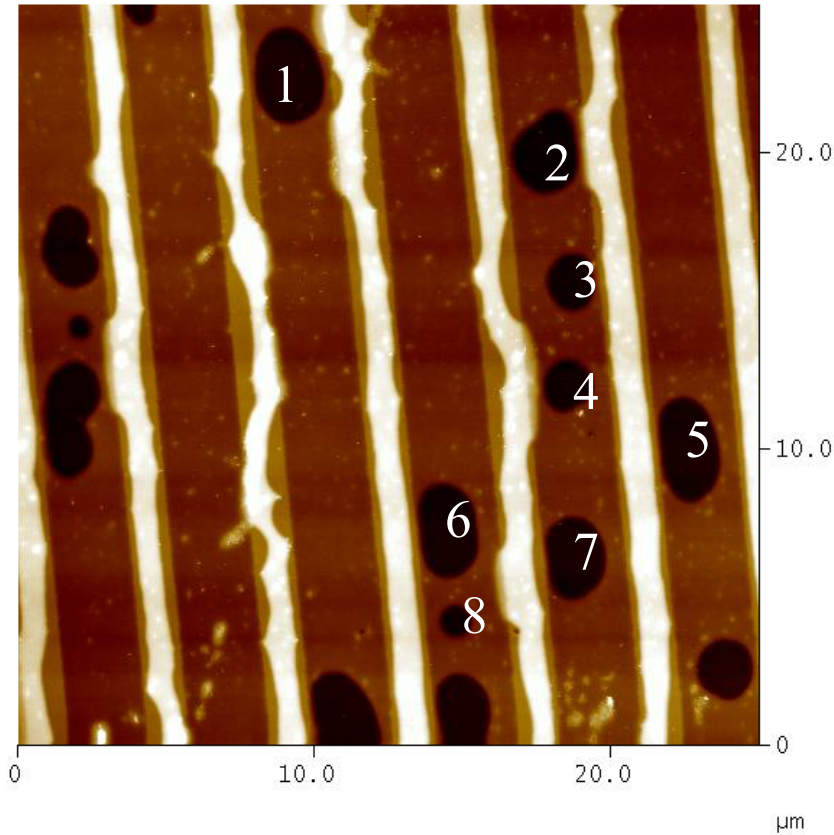
21 hours



67.5 hours



Cylinder Forming Block Copolymer



Cylinders Aligning in Well

← mesa → ← well → ← mesa →

