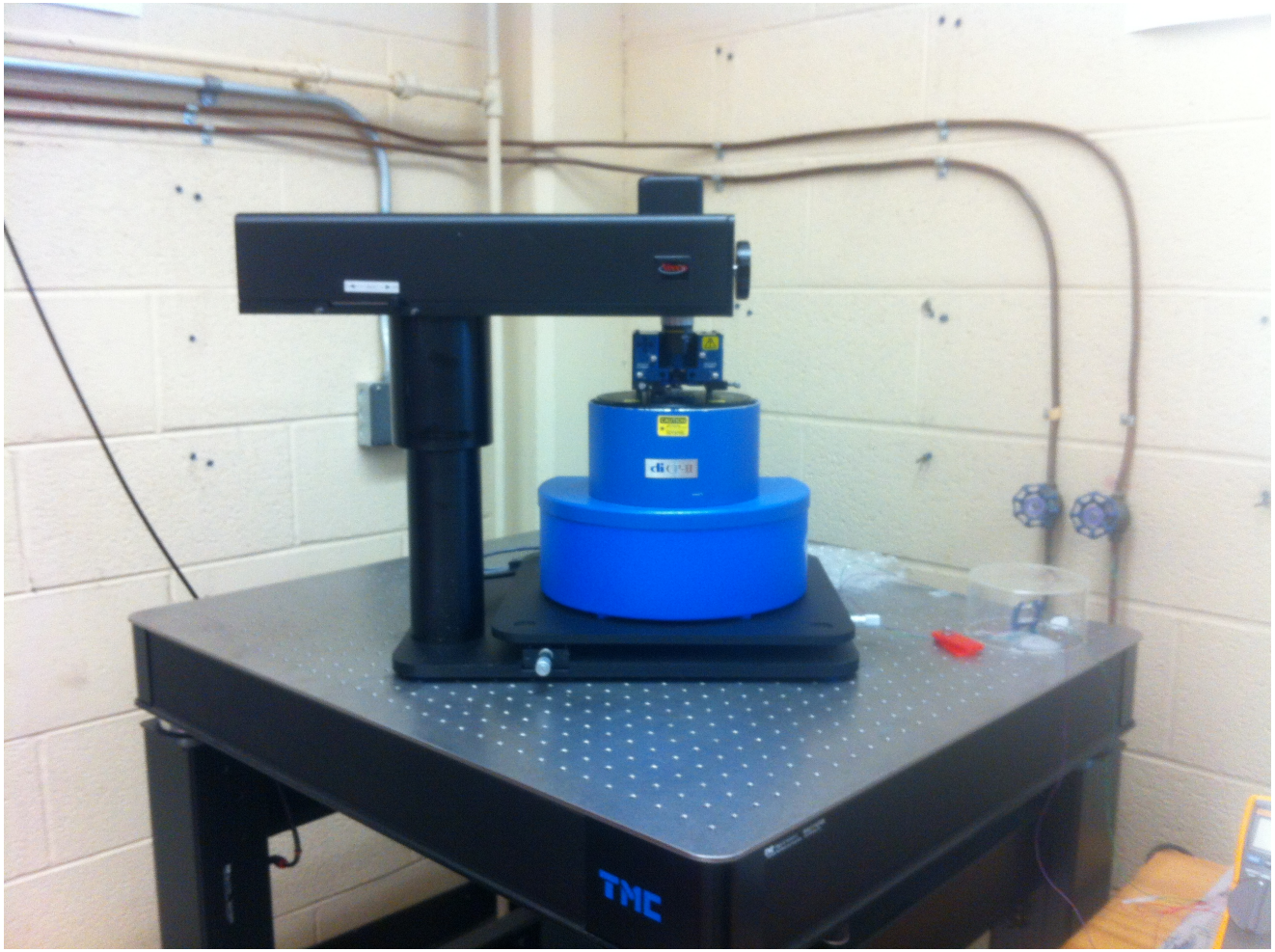
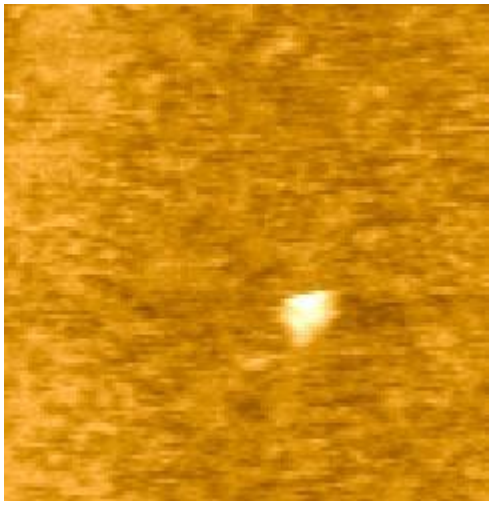
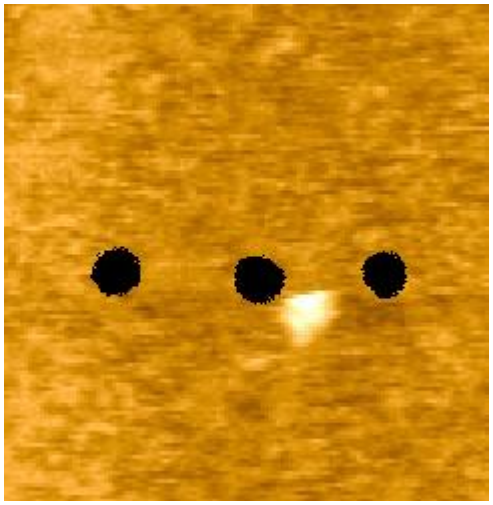
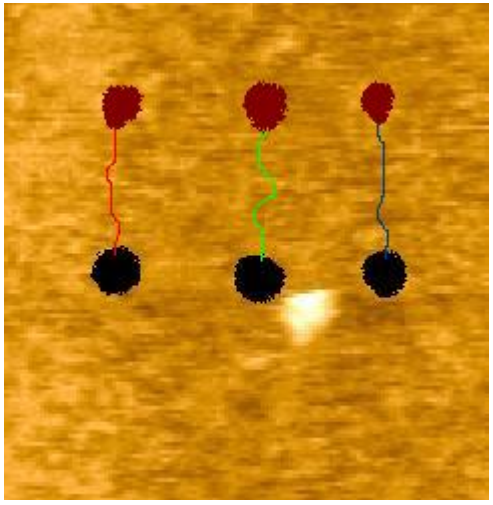
AFM Summer Research

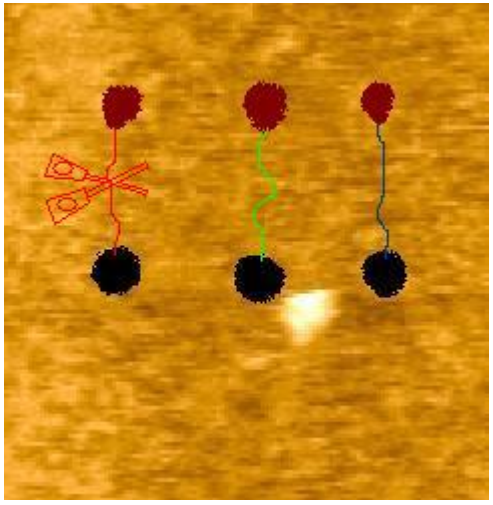


Project Overview

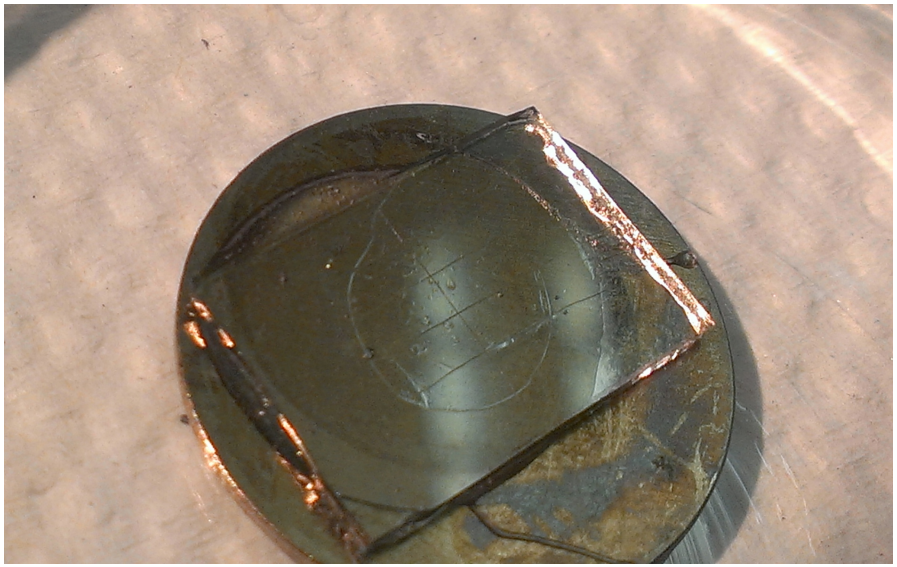




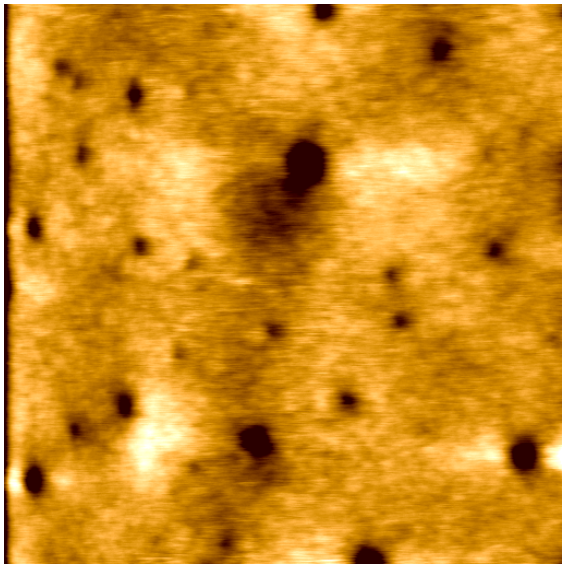




Polymer



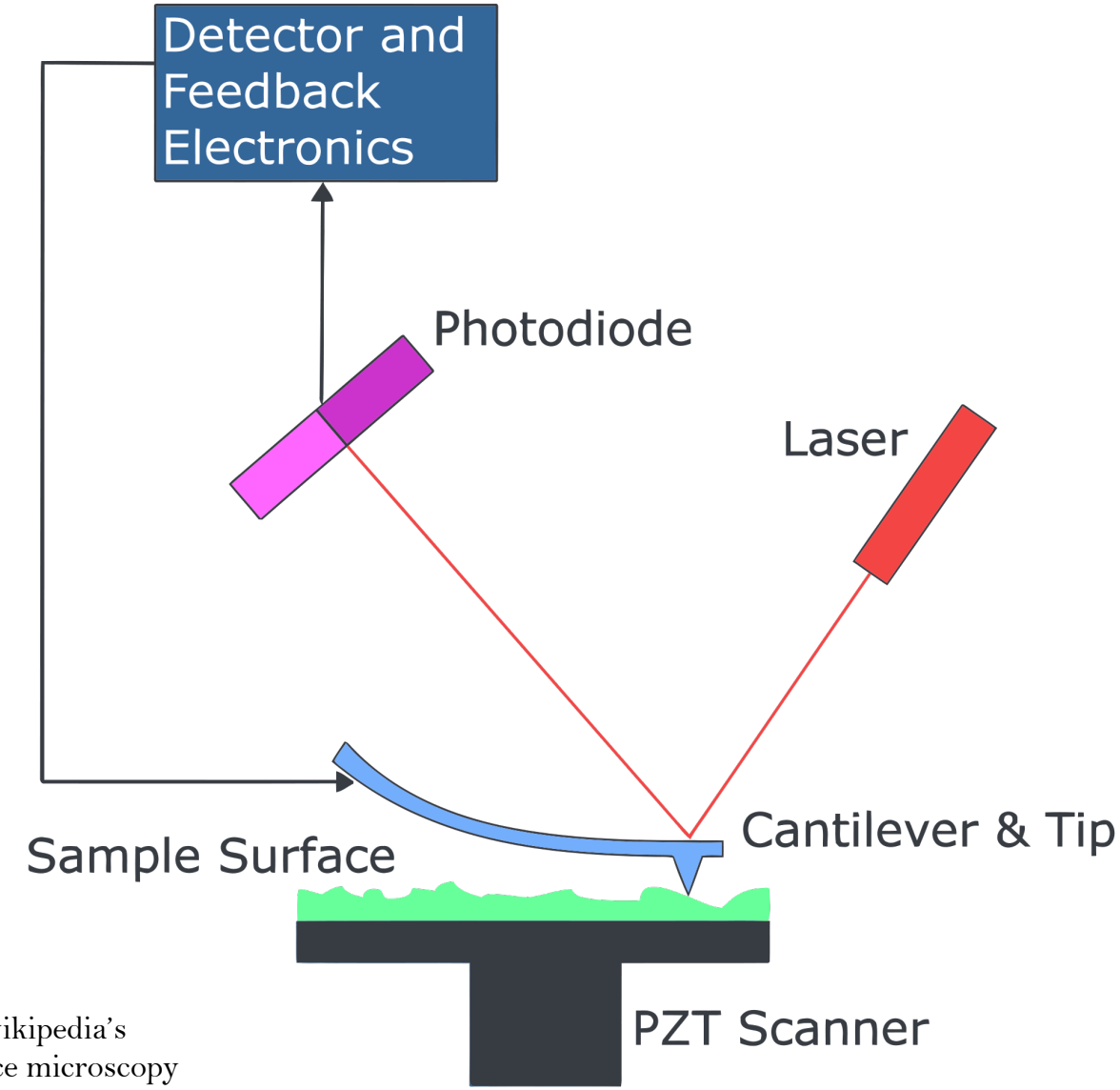
Phone camera picture



2µm x 2µm AFM scan

The polymer is explained in detail in: Robert Szoszkiewicz, Takashi Okada, Simon C. Jones, Tai-De Li, William P. King, Seth R. Marder, and Elisa Riedo, 2007, High Speed, Sub-15 nm Feature Size Thermochemical Nanolithography, *Nano Letters*, v. 7, p. 1064-1069

AFM



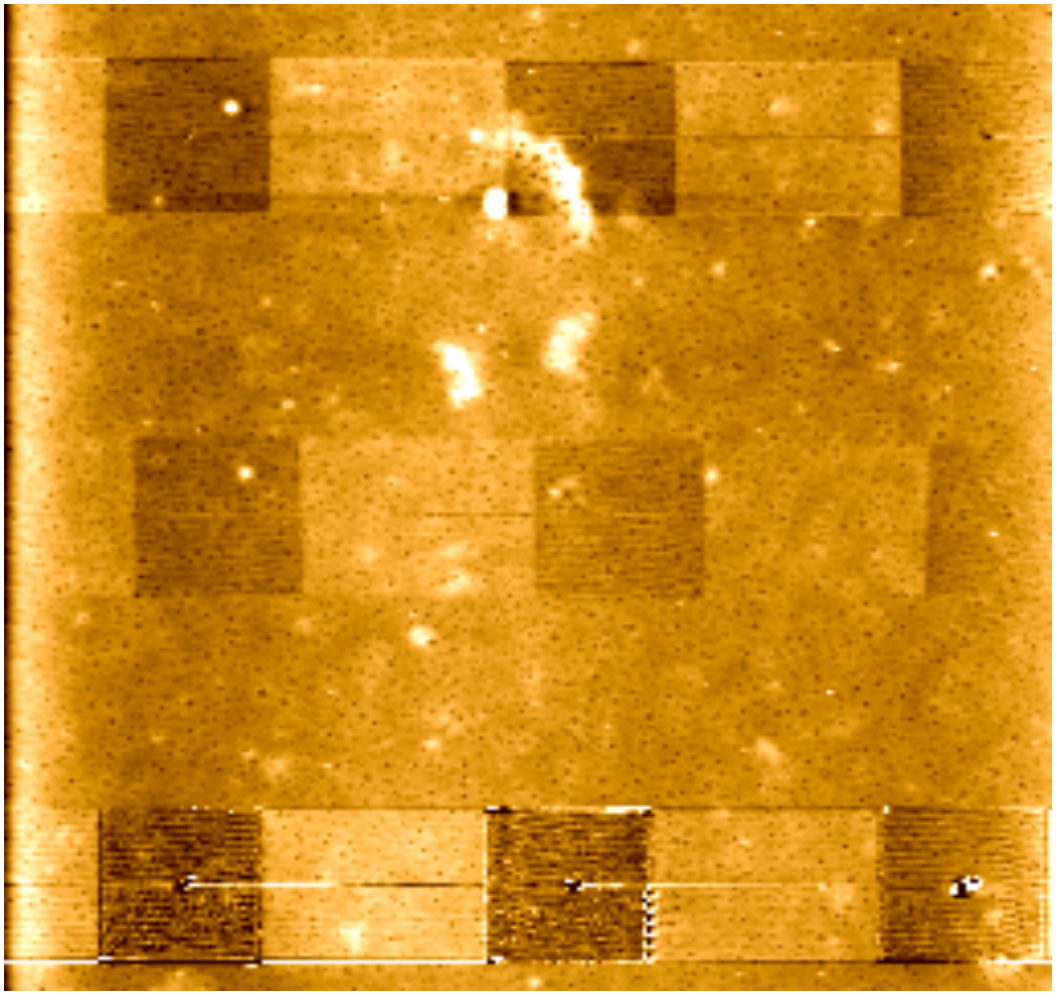
Picture taken from wikipedia's
article on atomic force microscopy

TCNL

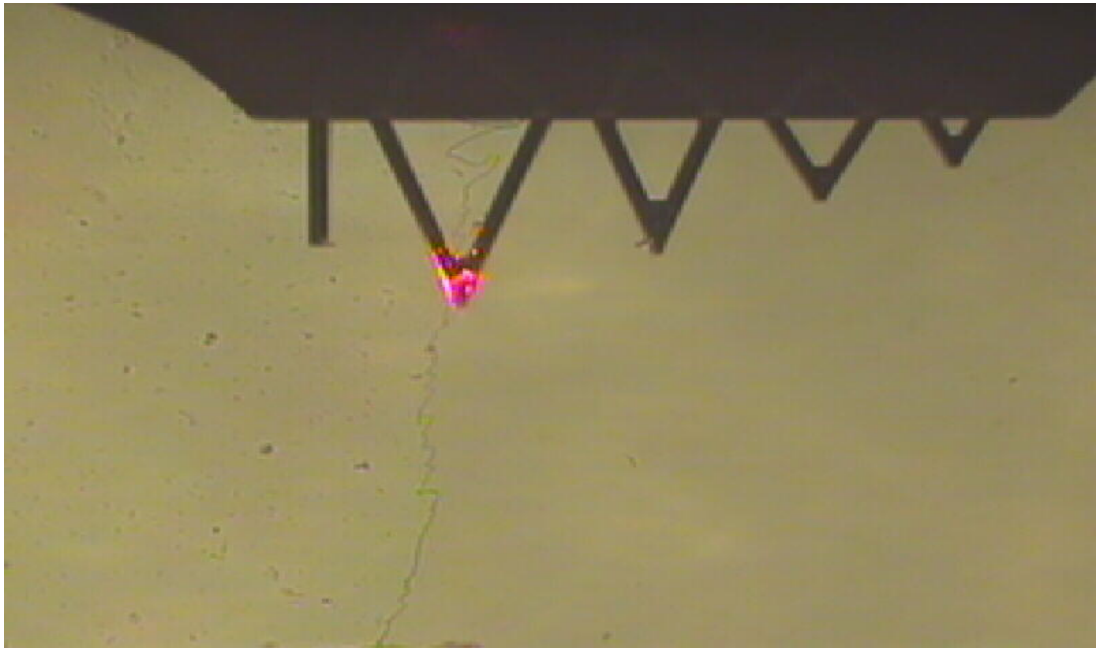
350°C →

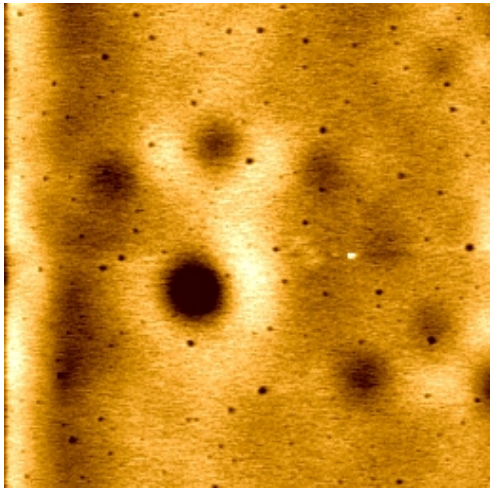
300°C →

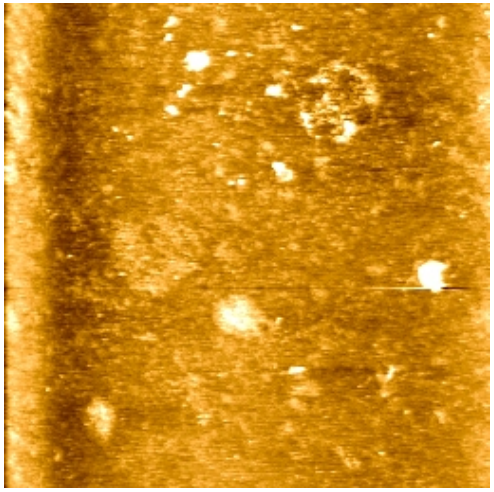
400°C →



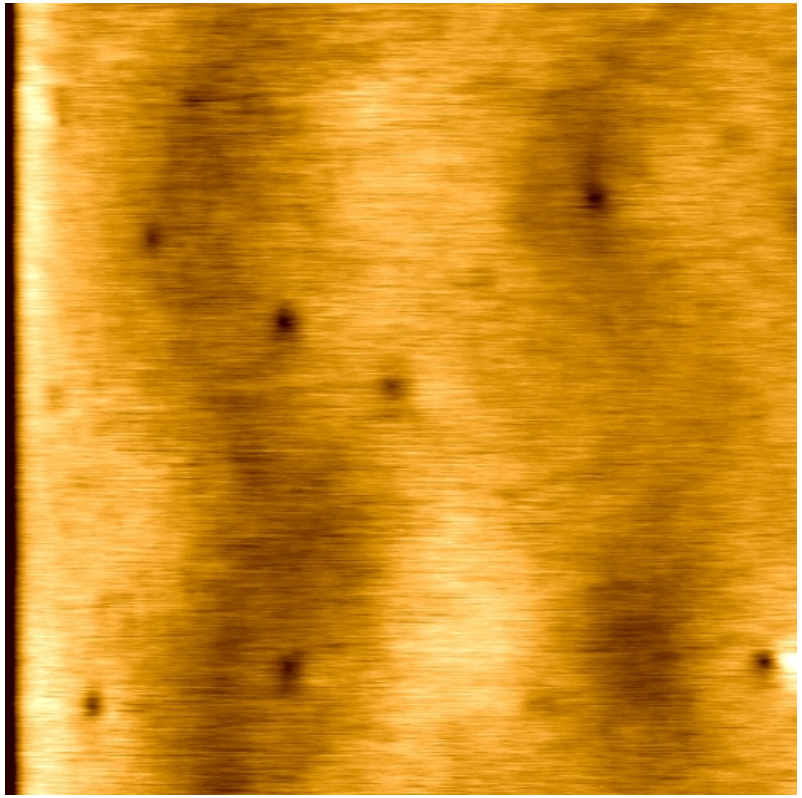
Incubation Can Destroy Polymer



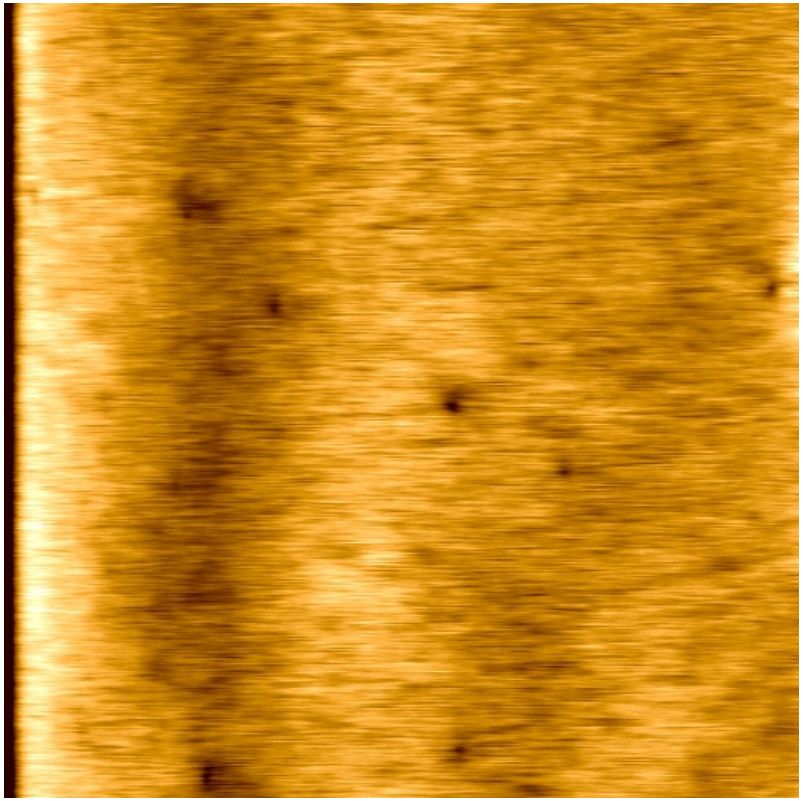




Not Sure Whether “Balloons” Stick



Before Incubation



After Incubation

Conclusions and Future Work

- Despite difficulties, I can thermally pattern and incubate the polymer with “balloons.”
- I am not sure whether the “balloons” stick yet, and this would be the subject of later work.
- Further steps would be to develop a better process that would consistently preserve the polymer during incubation. Also, there needs to be testing of our strategy with particular “scissors.”

Acknowledgments

- Dr. Szoszkiewicz
- Nicoleta Ploscariu
- Dr. Weaver and Dr. Corwin