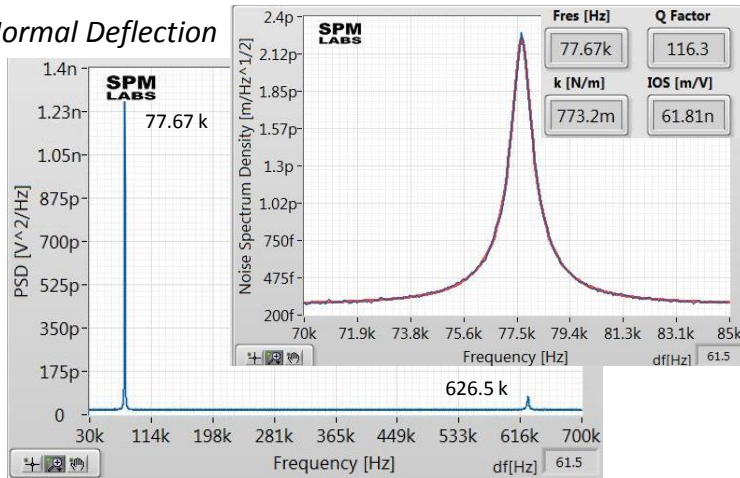
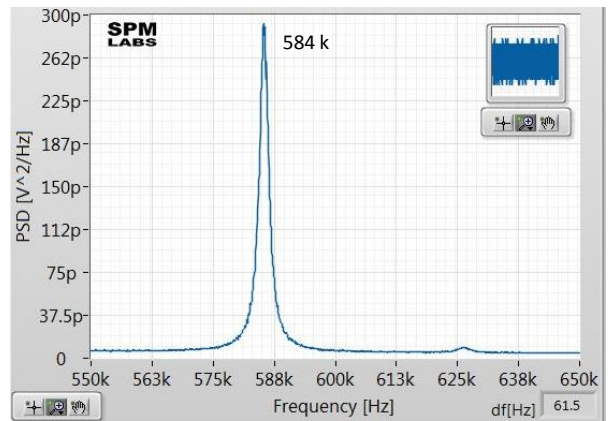


Normal Deflection



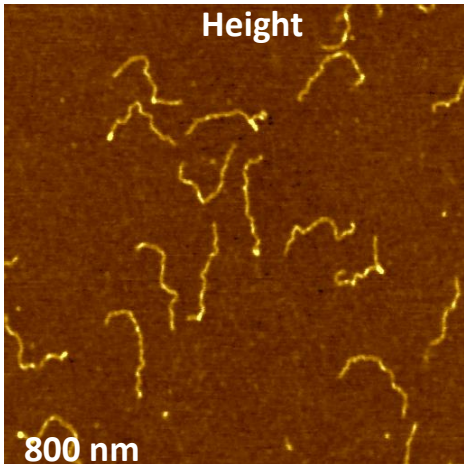
Lateral Deflection



The combined 100/35/0.6 $\text{Si}_3\text{N}_4/\text{Si}$ probe can be applied in AM-PI mode to a broad range of samples and used for contact mode study of relatively stiff materials with elastic modulus $> 2\text{ GPa}$. As seen from the images below, the probe provides high-resolution imaging of DNA strands, nanofibrils of microporous membrane and polyethylene lamella in PS/LDPE blend. The phase image of PS/LDPE obtained at high-force reveals a composition of the heterogeneous sample.

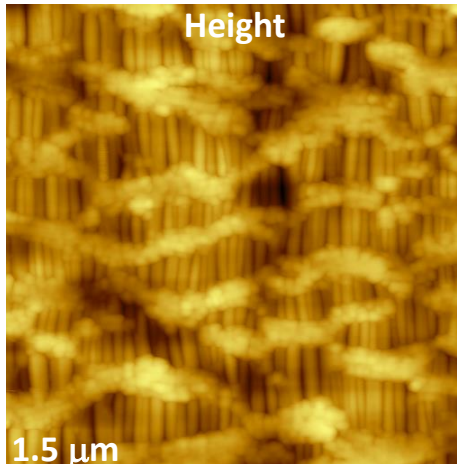
DNA

Height

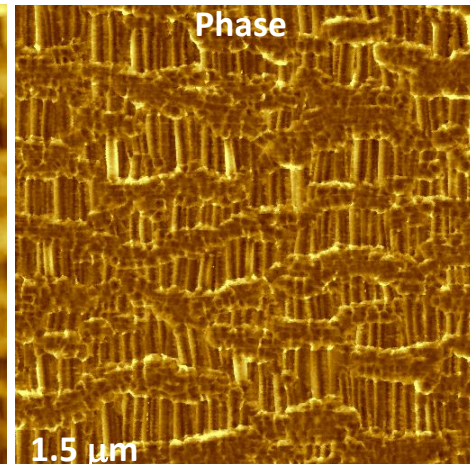


Microporous Membrane (Celgard™)

Height

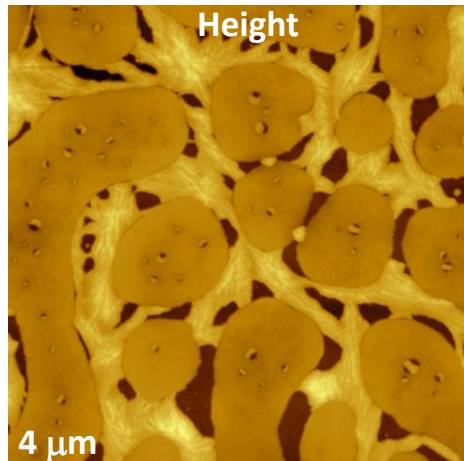


Phase

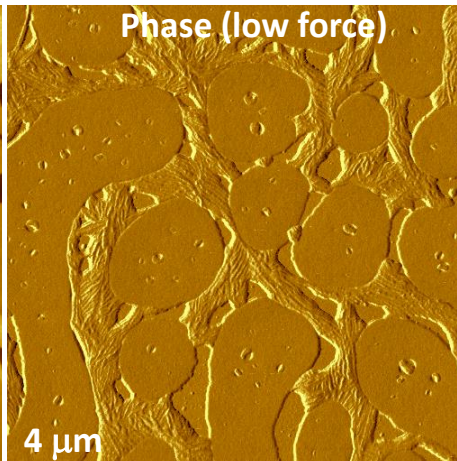


Polymer Blend of Polystyrene and Low-Density Polyethylene (PS/LDPE)

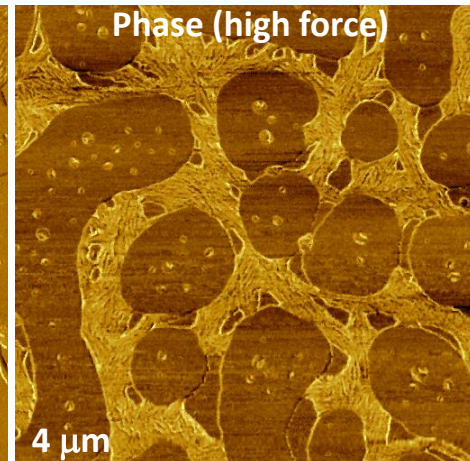
Height



Phase (low force)

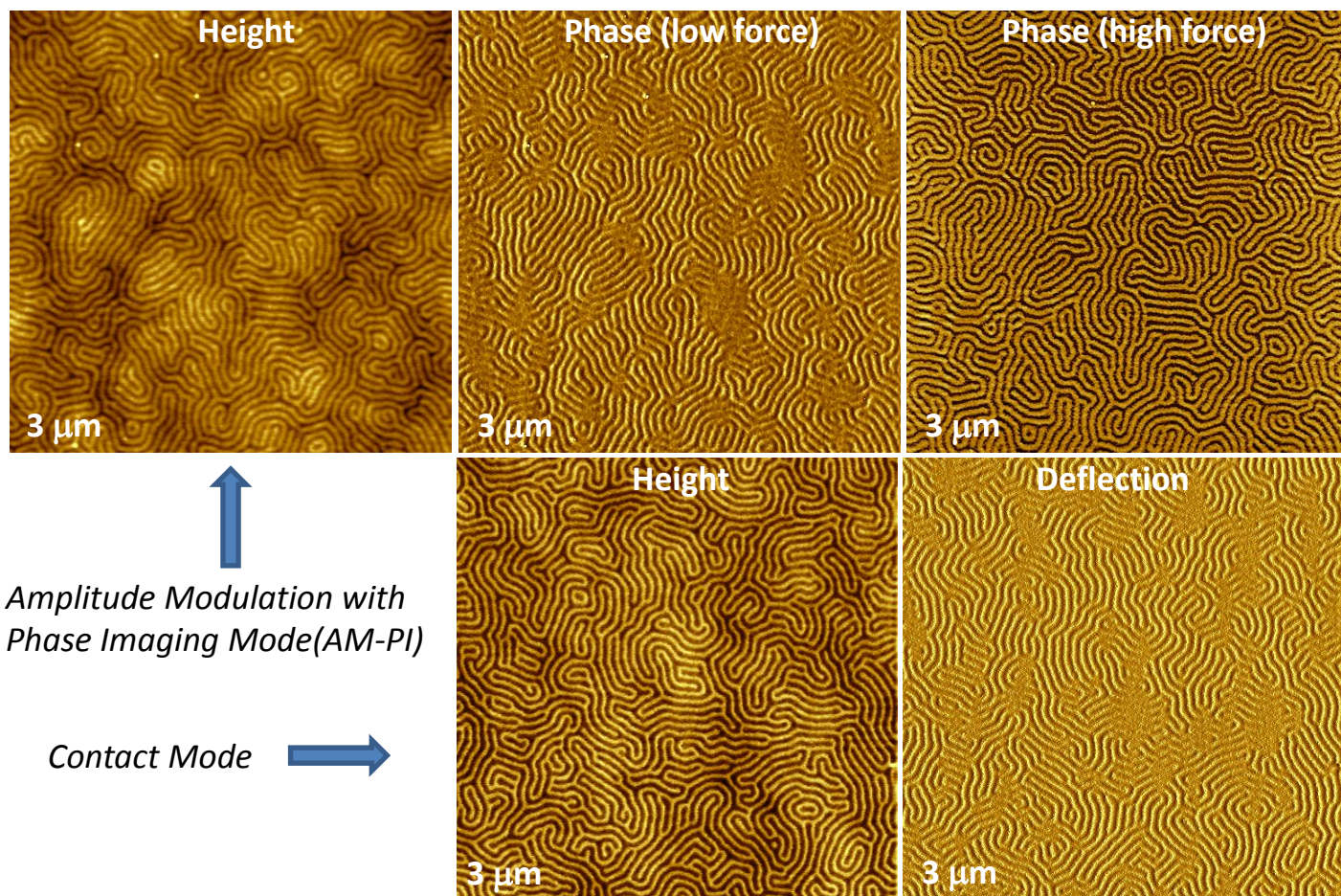


Phase (high force)



The AM-PI and contact mode images with 100/35/0.6 $\text{Si}_3\text{N}_4/\text{Si}$ probe were obtained on block copolymer PS-*b*-PMMA and polymer blend PS/PVAC. A microphase-separated pattern of the block copolymer and compositional map of the blend are seen in the images recorded in both modes. In contact mode a set-point deflection has been minimized to provide low-force scanning to avoid sample damage. It is worth noting that the components of these samples have elastic modulus of 2-3 GPa. Imaging in liquid, where the capillary forces are negligible, will be better for soft samples

Diblock copolymer – PS-*b*-PMMA on Si substrate



Polymer blend of polystyrene and poly(vinyl acetate) PS/PVAC on Si substrate

