

Problem Set #3

1. You have been given two specimens. One is a polished steel, the other a thin piece of nylon. Which AFM/STM imaging modes would be most useful in helping you describe the nature of the two surfaces and why?
2. You have been given a silicon wafer with a developed pattern in photoresist and need to provide width and height measurements of the resist pattern. Which AFM/STM mode would be most useful in providing this information?
3. (a) Outline the principle advantages of a scanning electron microscope compared to optical microscopes, including confocal scanning optical microscopes.
(b) Outline the principle advantages of optical microscopes, including confocal scanning optical microscopes, compared to a scanning electron microscope.
4. Compare and contrast the imaging modes, and the advantages and disadvantages of a AFM/STM with a scanning electron microscope.