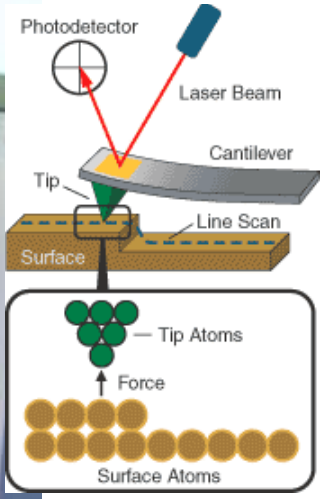
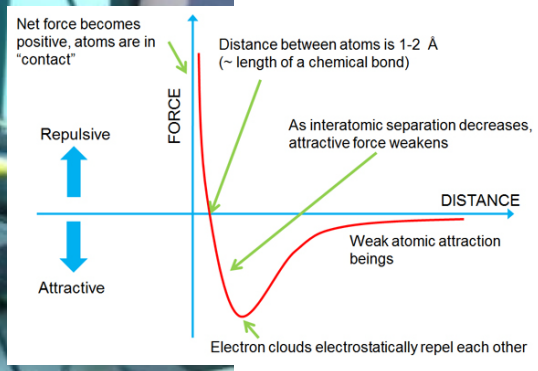
Atomic Force Microscope (AFM)

A very high resolution microscope utilized for imaging, measuring and manipulating matter in sub nanometer scale. At VECC, we use AFM to measure structural, magnetic, conducting and mechanical properties of ion beam induced patterns, thin films, nanostructures, bilayer etc.





Positron annihilation studies set-up

Facilities at VECC

- Positron Annihilation Lifetime Spectrometer
- Temperature dependent (300K to 773 K) Doppler Broadening of Positron Annihilation Radiation Spectrometer
- Temperature dependent (5K to 300 K) Coincidence Doppler Broadening Spectrometer

Research Areas being pursued at VECC

- Wide band gap semiconductor
- Nano-crystalline oxides
- Superconductor

Scanning Electron Microscope (SEM)

Resolution achieved: 5 nm with lanthanum hexa boride filament

Magnification : Wide range (50 – 10,00,000 X)

Atmosphere : High vacuum and variable pressure mode operation

Applications:

- Topographical imaging using secondary electrons
- Compositional imaging using back scattered electrons
- Qualitative chemical analysis from x-rays
- Surface cracks and fracture analysis
- Useful for metals, alloys, oxides, carbides, polymers, biological, geological samples