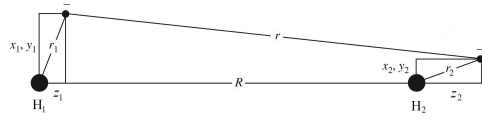


Spring 2008 MSAE E4990y
Introduction to STM and AFM

Lecture 10
VdW, Ionic, and Repulsive Atomic Forces
February 25, 2008

Van der Waals Force between Two Atoms

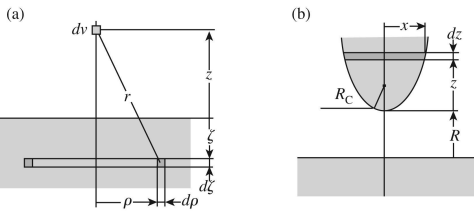


The additional interaction between the two atoms are: (1) The repulsive interaction between two nuclei; (2) The repulsive interaction between two electrons; (3) The attractive interaction between electron 1 and nucleus 2; and The attractive interaction between electron 2 and nuclei 1.

An approximate expression can be worked out.

The interaction energy is a second-order perturbation effect.

Van der Waals Force Between A Tip and A Surface



Close form expression can be obtained (one of two cases).

Ionic Force and Repulsive Force

