Figures of Chapter 3: Electronic Structure

Undistorted Charge Distribution at the Surface

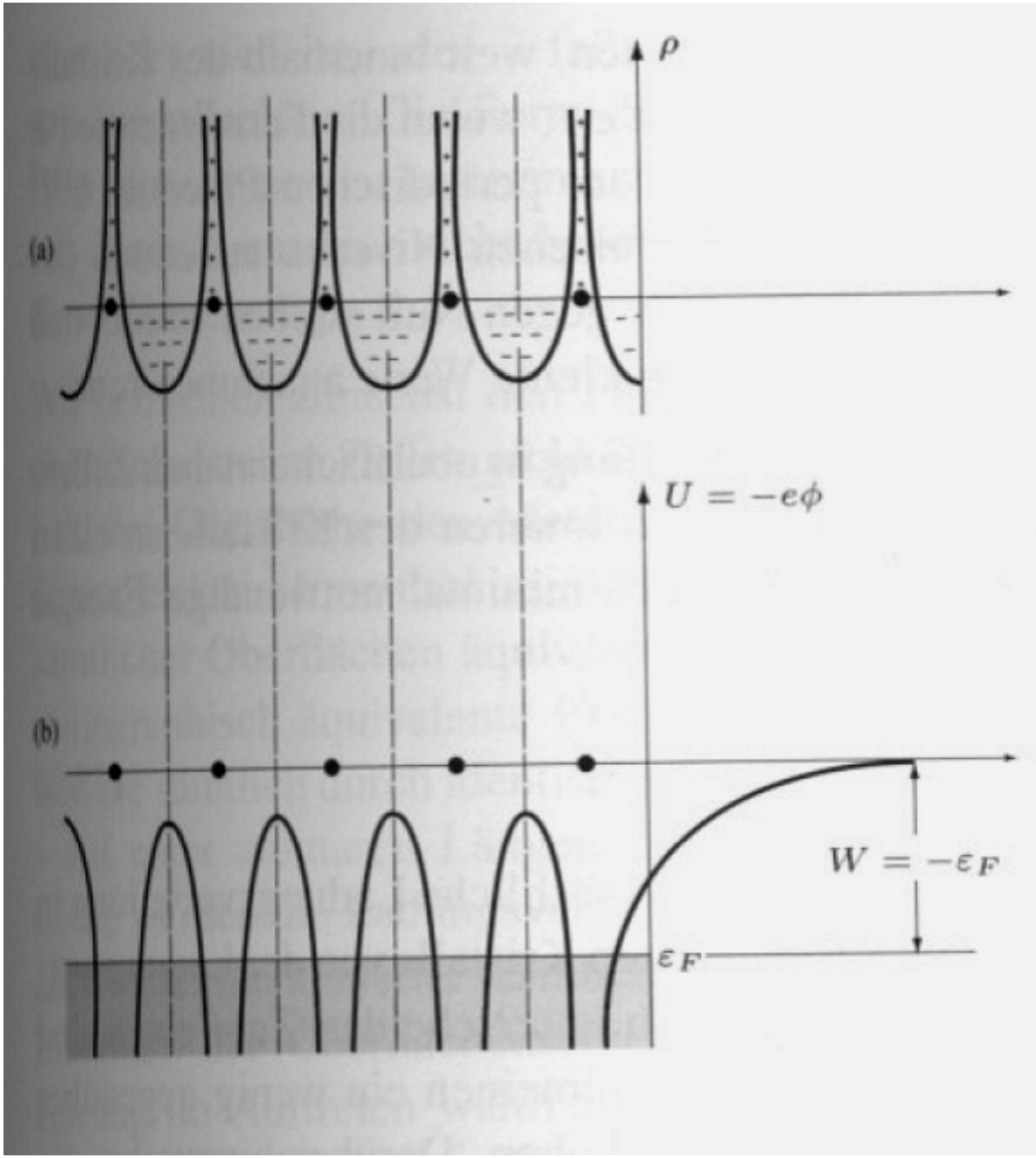


Fig. 3.1

Distorted Charge Distribution at the Surface

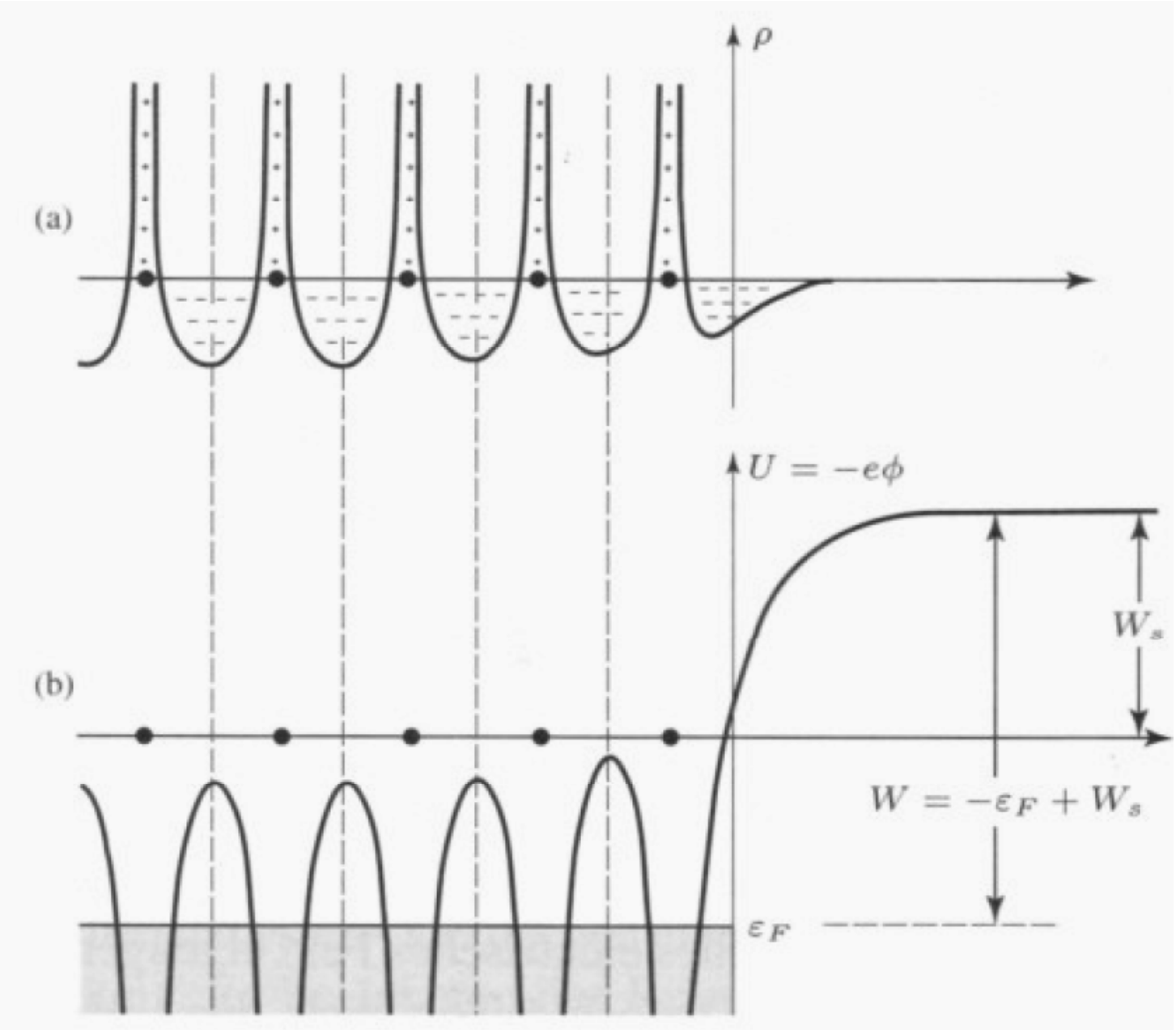


Fig. 3.2

No Perpetuum Mobile: Crystal Faces F,F‘ on Different Electrostatic Potentials

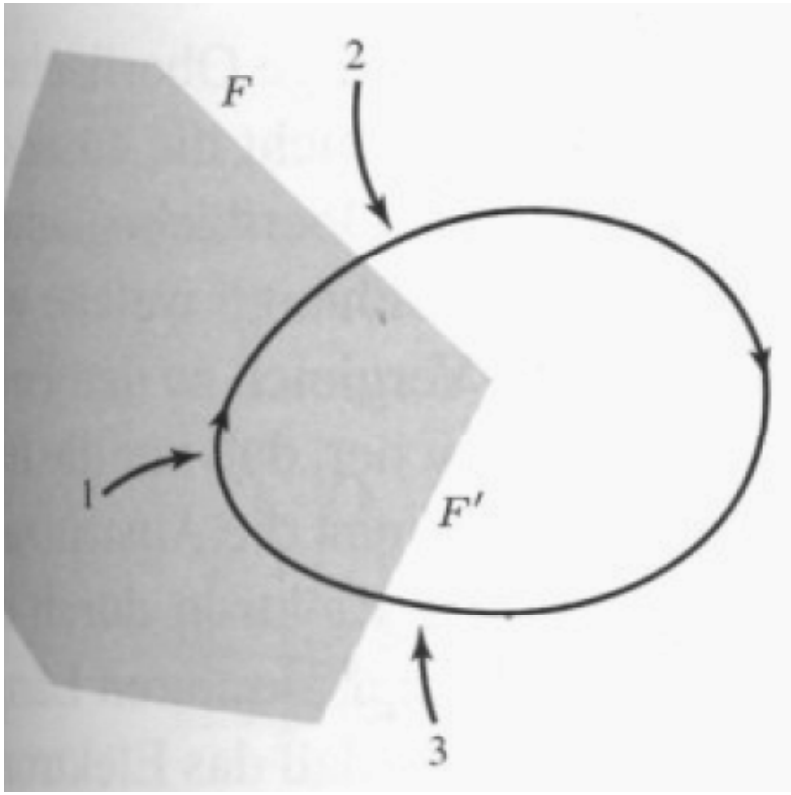


Fig. 3.3

Contact Potential

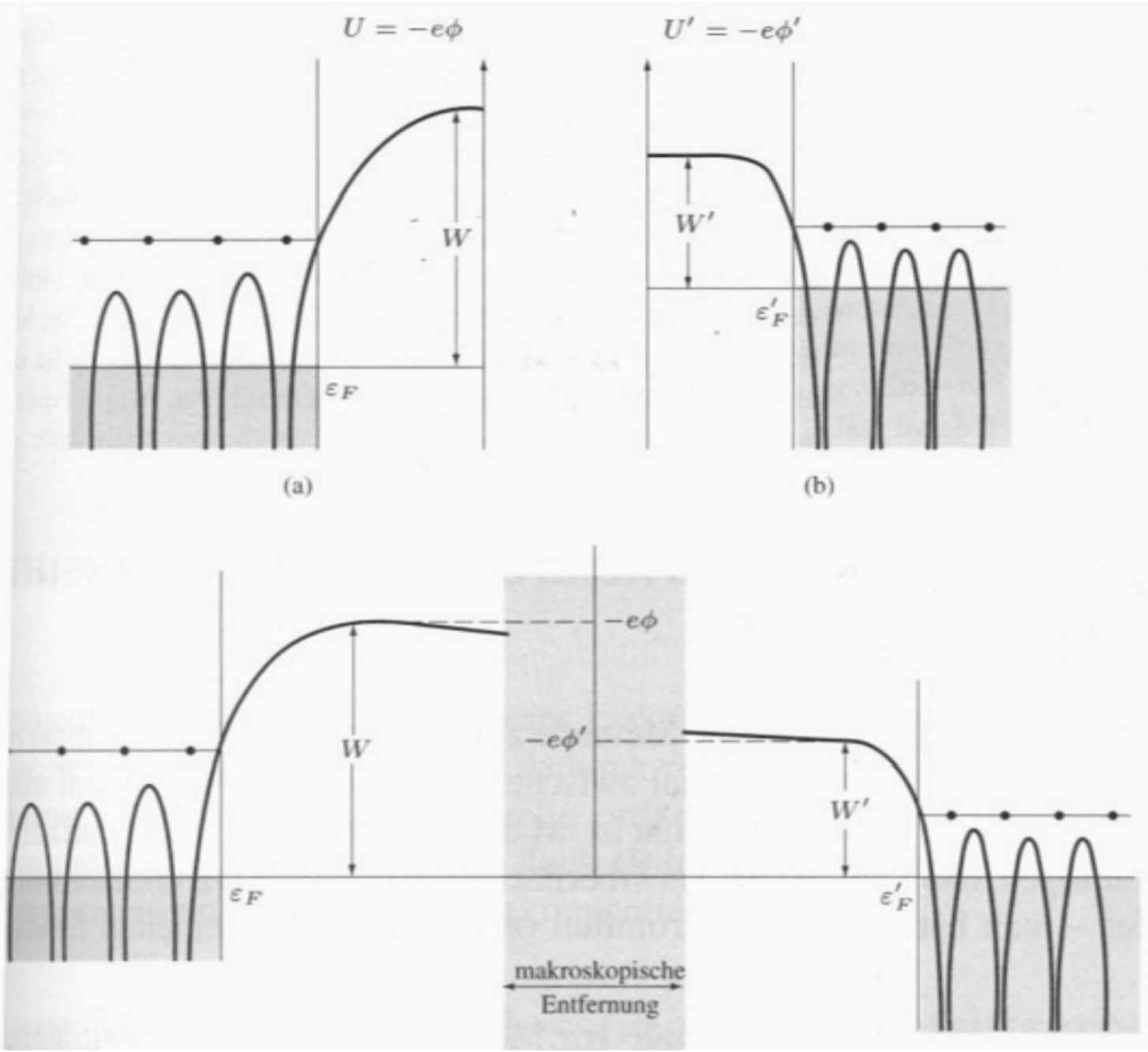


Fig. 3.4

Kelvin Probe

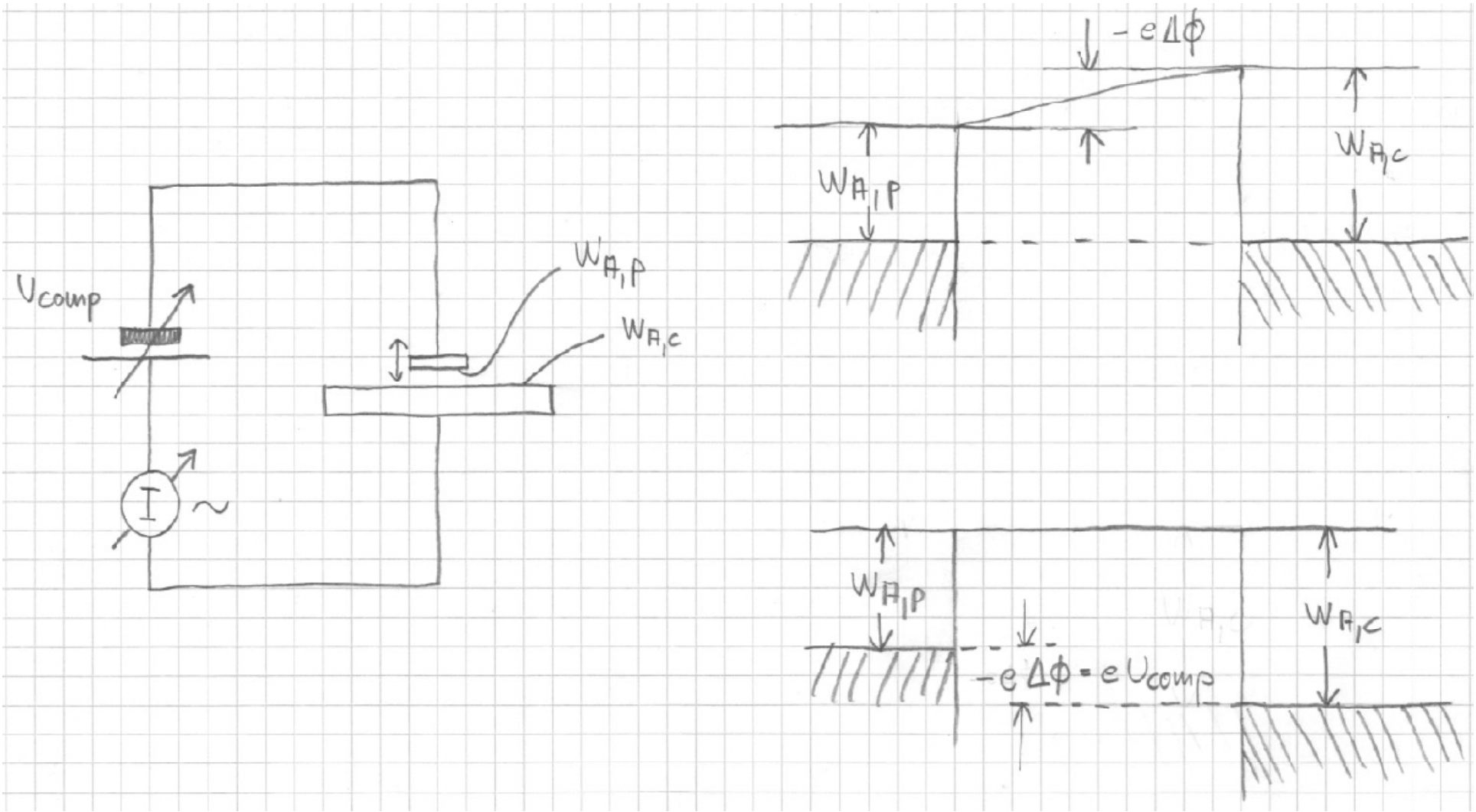
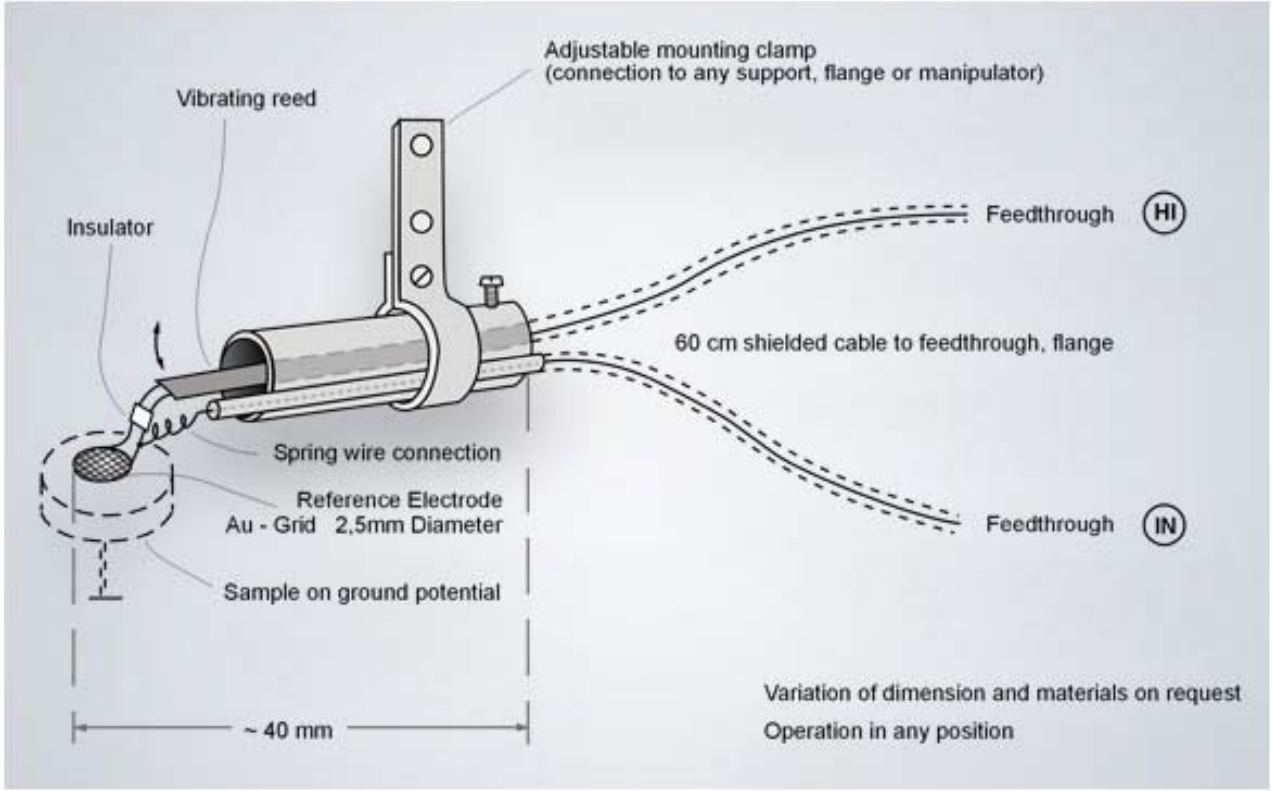


Fig. 3.5

Kelvin Probe of Delta Phi Company



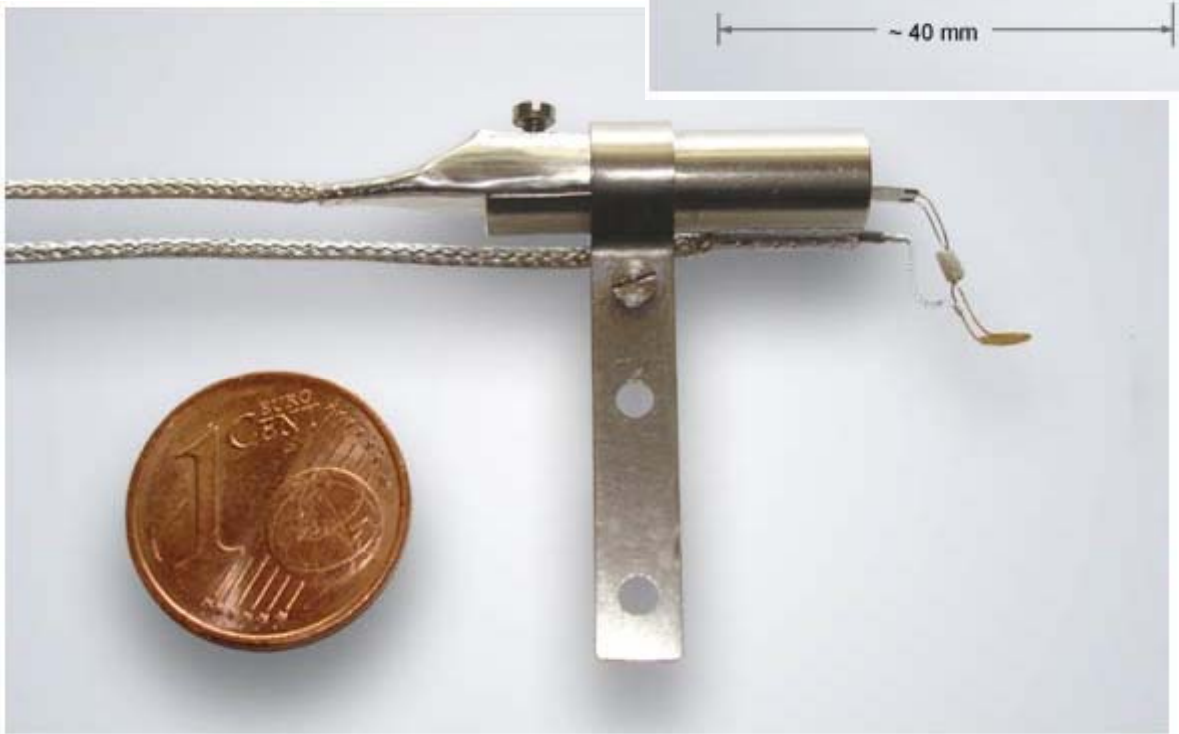
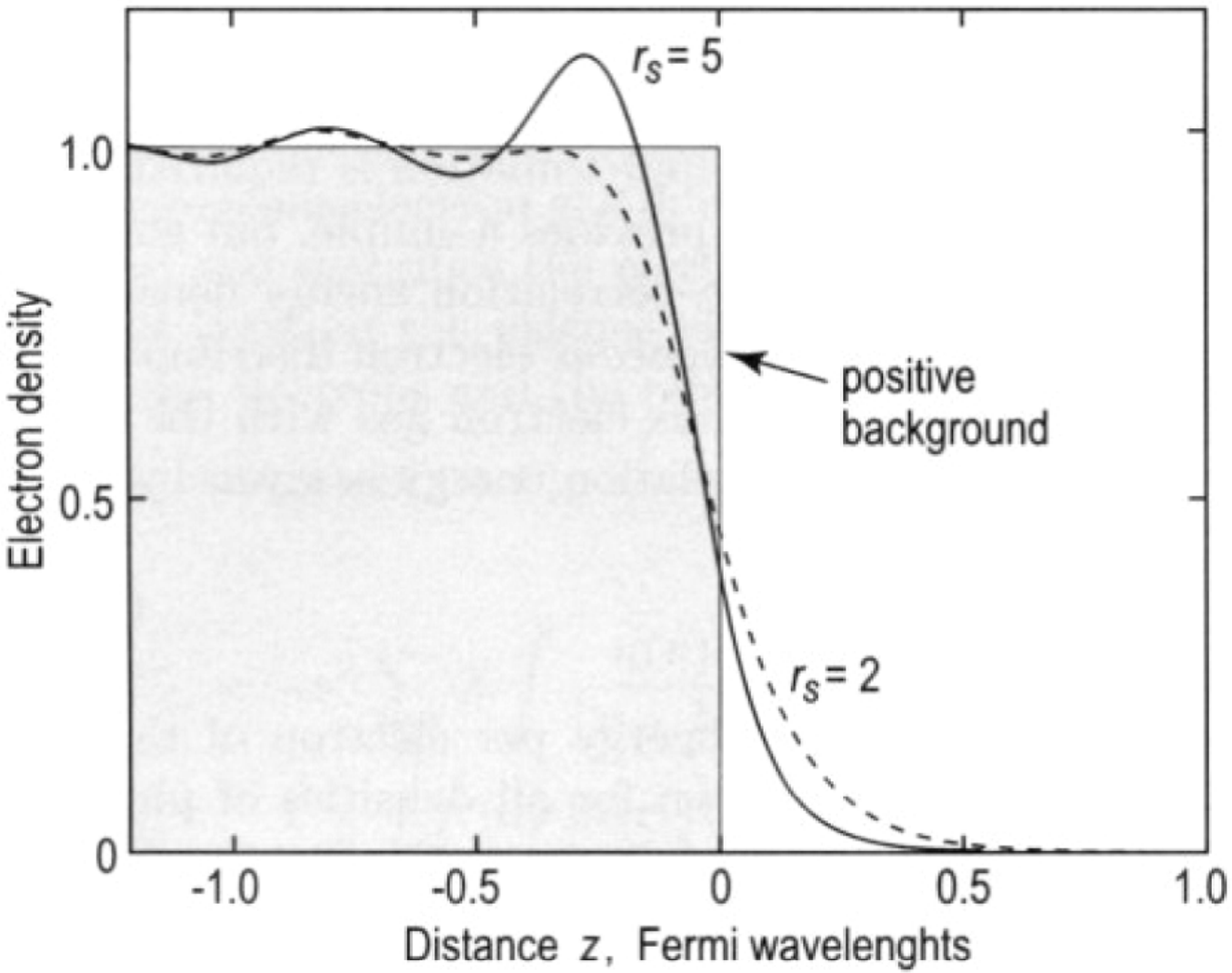


Fig. 3.6

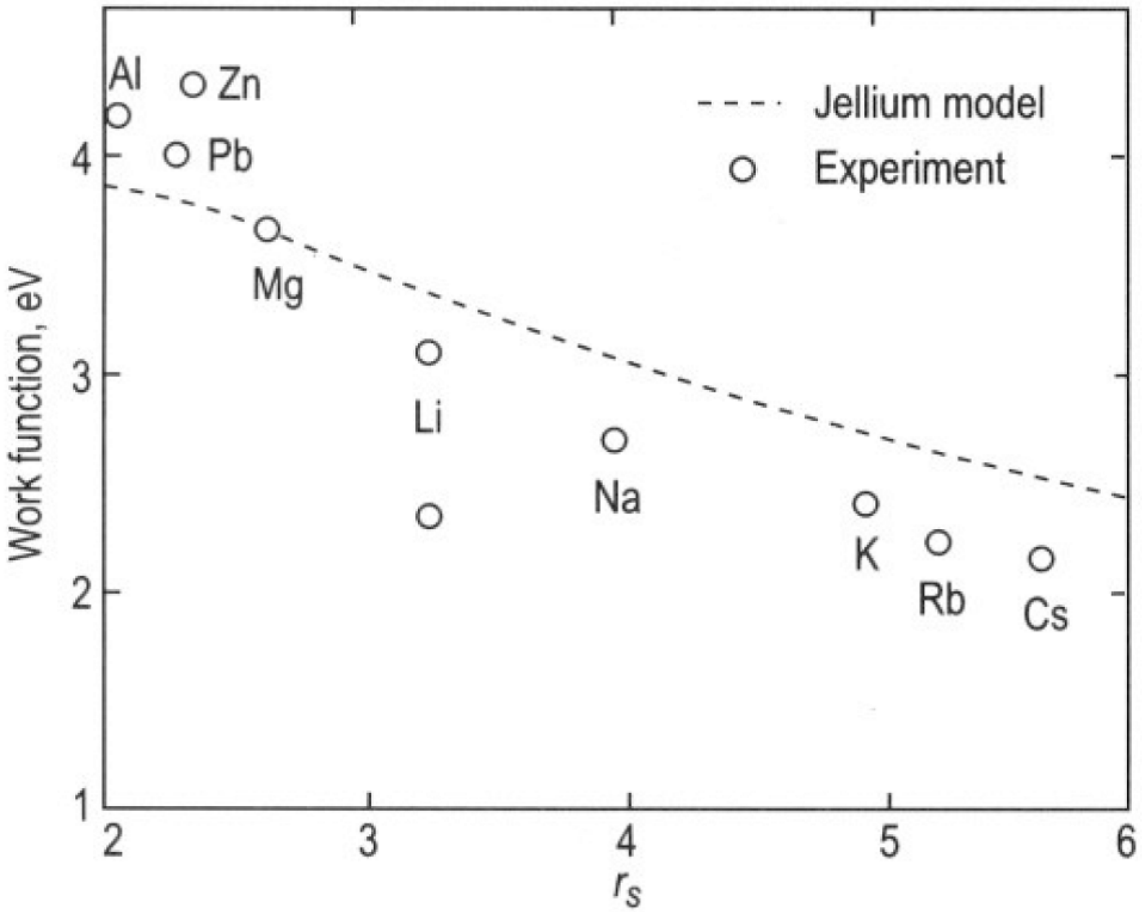
Electron Density at a Surface in the Jellium Model



N.D. Lang, W. Kohn, Phys. Rev. B 1 (1970) 4555

Fig. 3.7

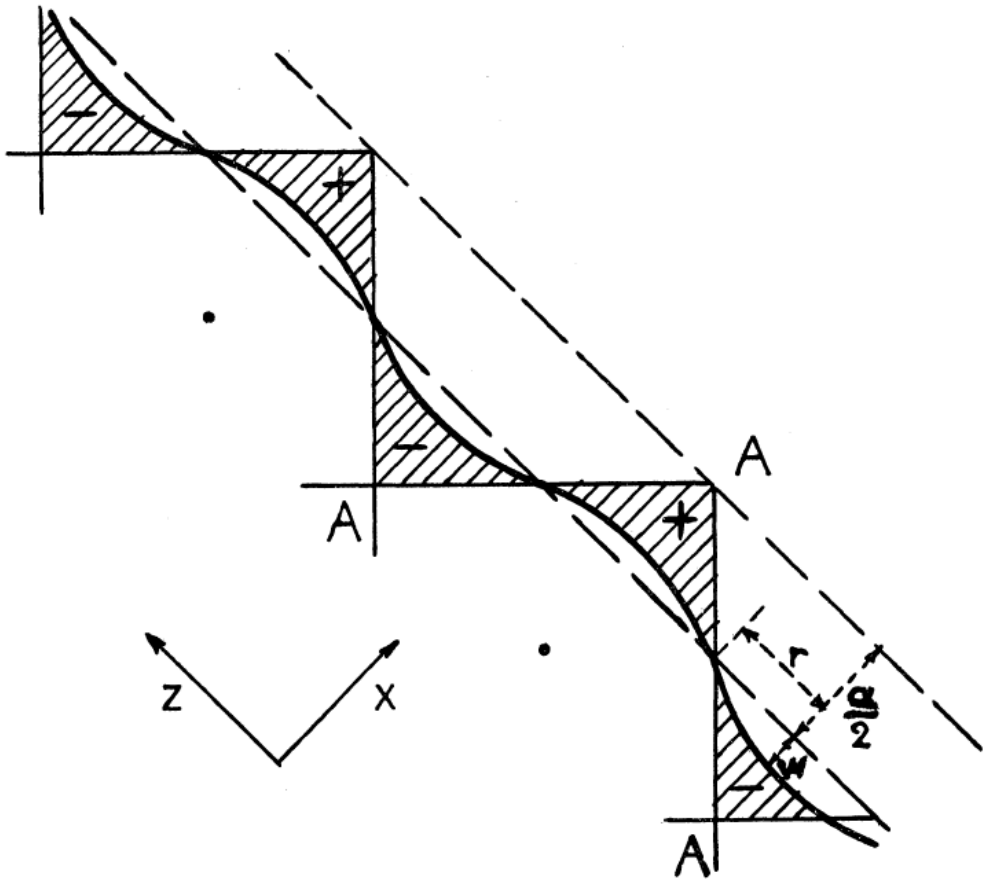
Work Function for Simple Metals Calculated by the Density at a Surface in the Jellium Model



N.D. Lang, W. Kohn, Phys. Rev. B 3 (1971) 1215

Fig. 3.8

Smoluchowski Effect



R. Smoluchowski, Phys. Rev. 60 (1941) 661

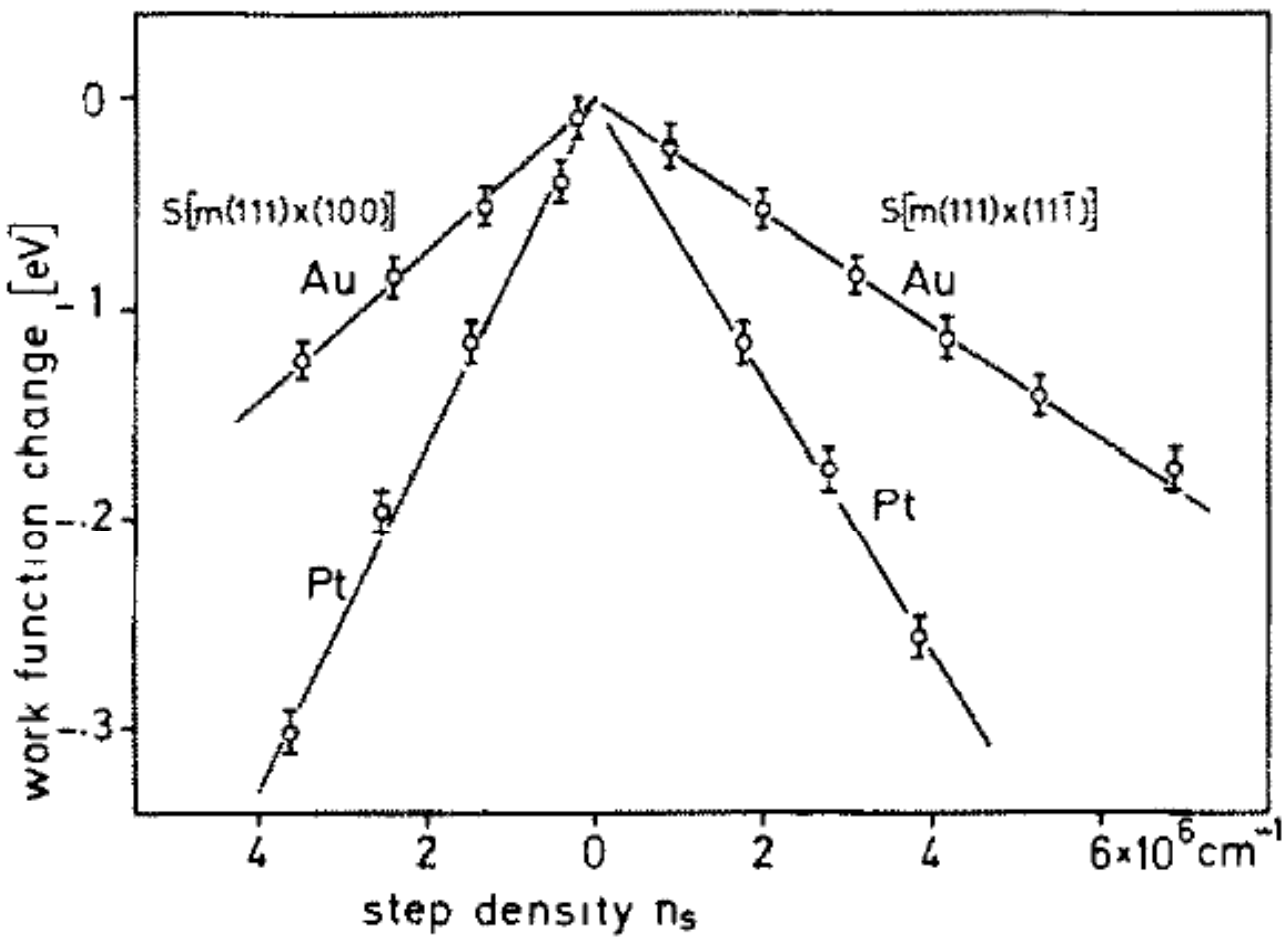
Fig. 3.9

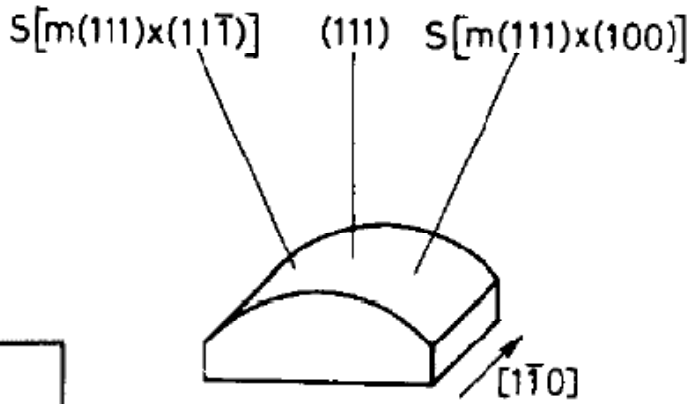
Anisotropy of Work Function

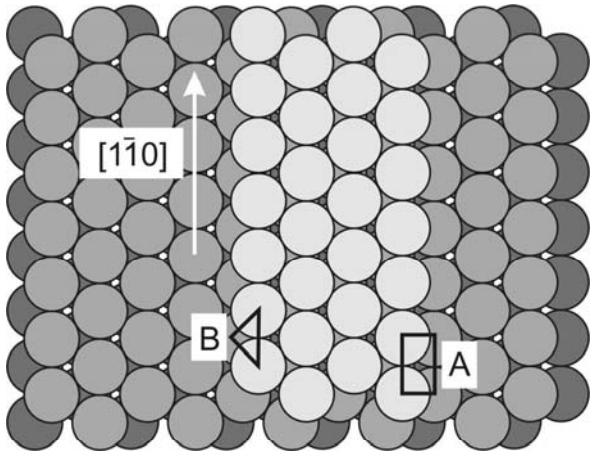
Metal	Structure	Work function ϕ, eV			
		Plane			Polycrystalline
		(110)	(100)	(111)	
Cs	bcc				2.9
Li	bcc				2.30
Ag	fcc		4.42	4.56	4.3
Cu	fcc	4.48	4.63	4.88	4.65
Pt	fcc		5.84	5.82	5.65
Ir	fcc	5.42	5.67	5.76	5.3

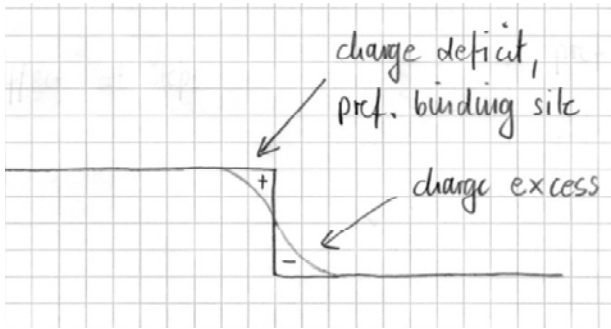
Fig. 3.10

Dependence of Work Function on Step Concentration





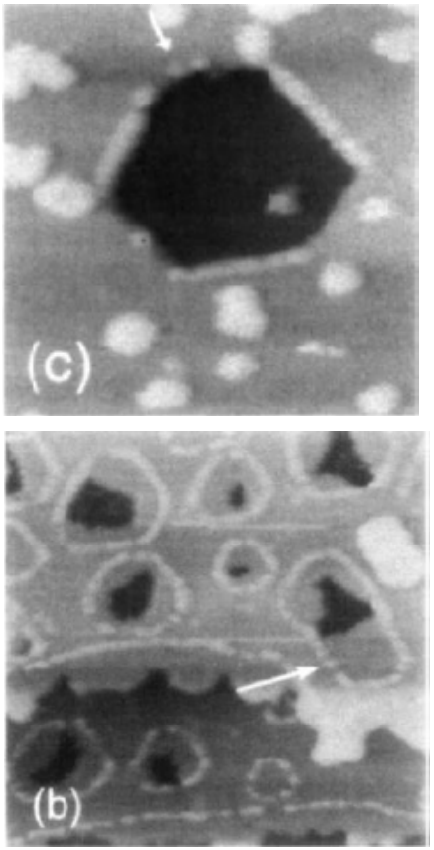




K. Besocke, B. Krahl-Urban, H. Wagner, Surf. Sci. 68 (1977) 39

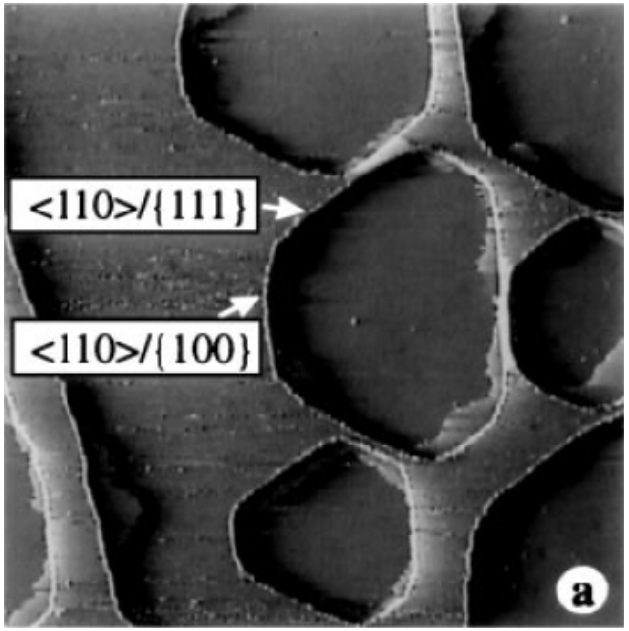
Fig. 3.11

Binding at Upper Step Edges Due to Smoluchowski Effect – Needs of the Substrate Atoms Decide



Xe on Pt(111)

P. Zeppenfeld, S. Horch, G. Comsa, PRL 73 (1994) 1259

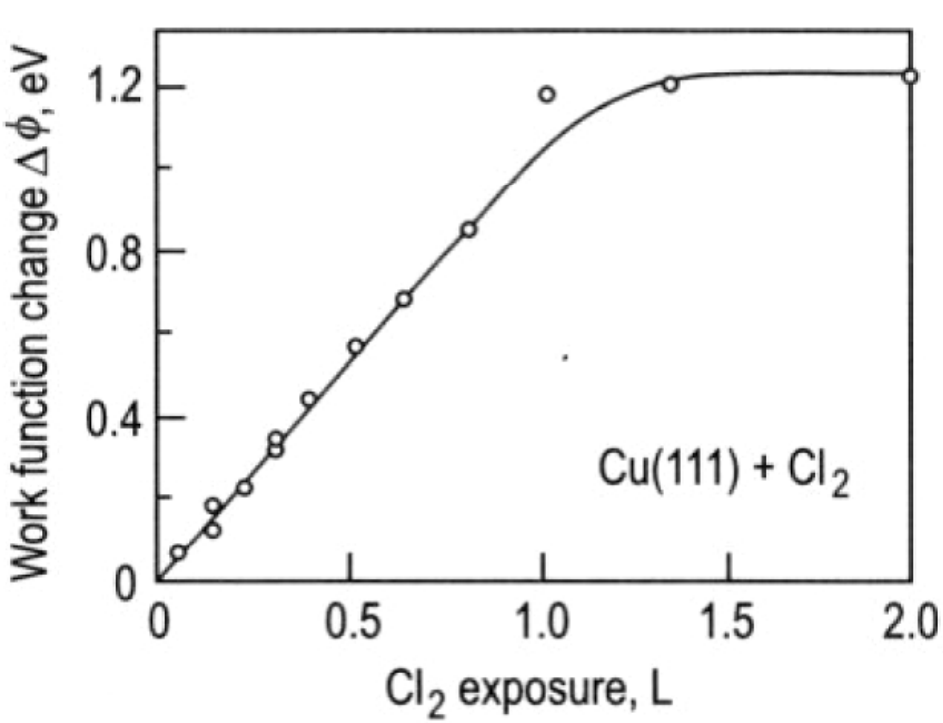


H_2O on Pt(111)

M. Morgenstern, T. Michely, G. Comsa, PRL 77 (1996) 703

Fig. 3.12

Adsorption Dependence of Work Function



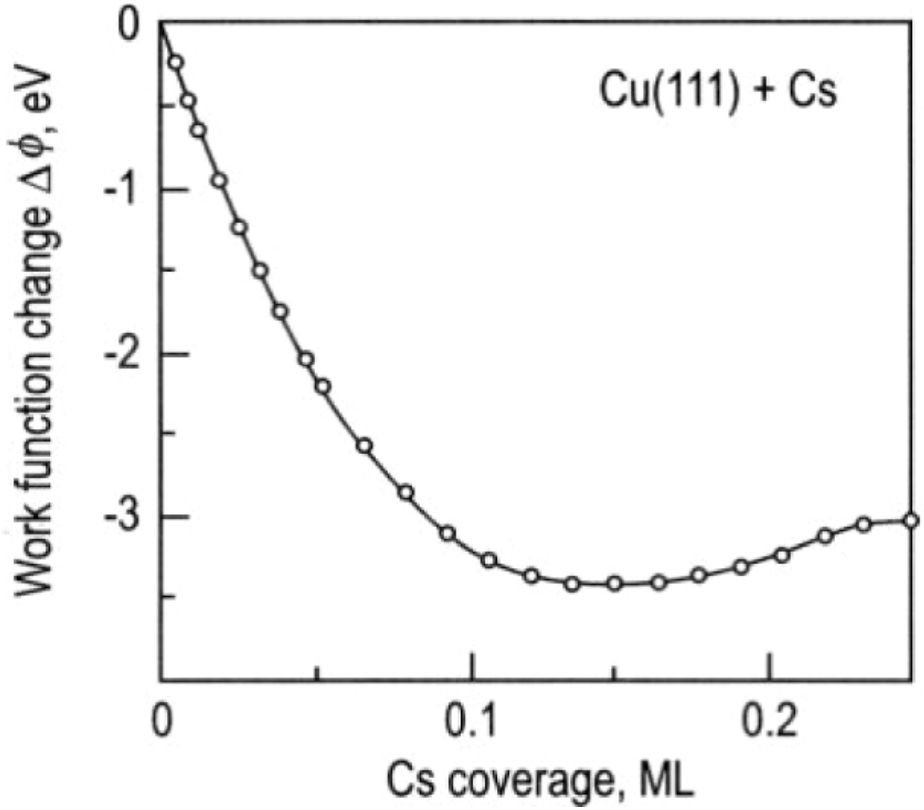


Fig. 3.13