

Fig. 1.1 Esquema simplificado de la energía potencial en una superficie. (a) ideal y (b) no-ideal

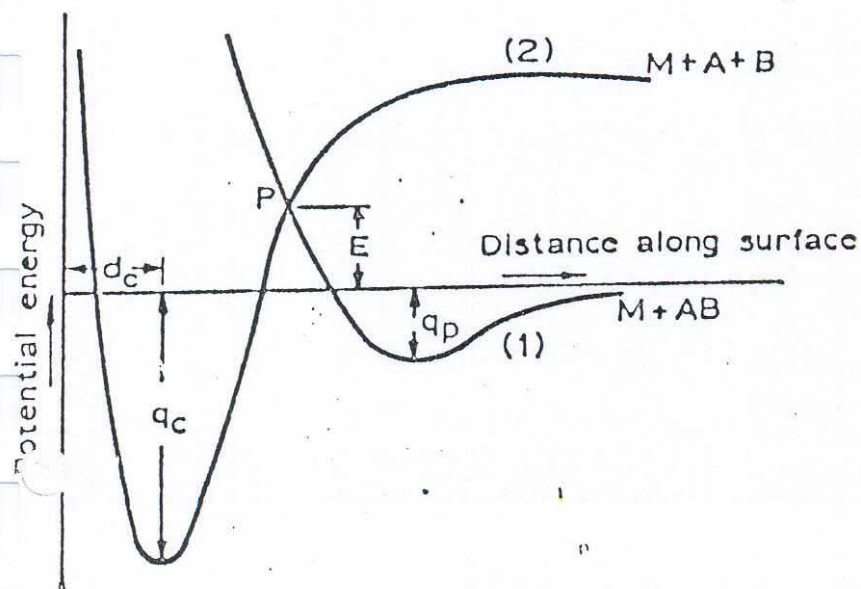


Fig. 1.2 Curvas de energía potencial para adsorción molecular

CONTAMINANT ADSORPTION: TIME vs. VACUUM

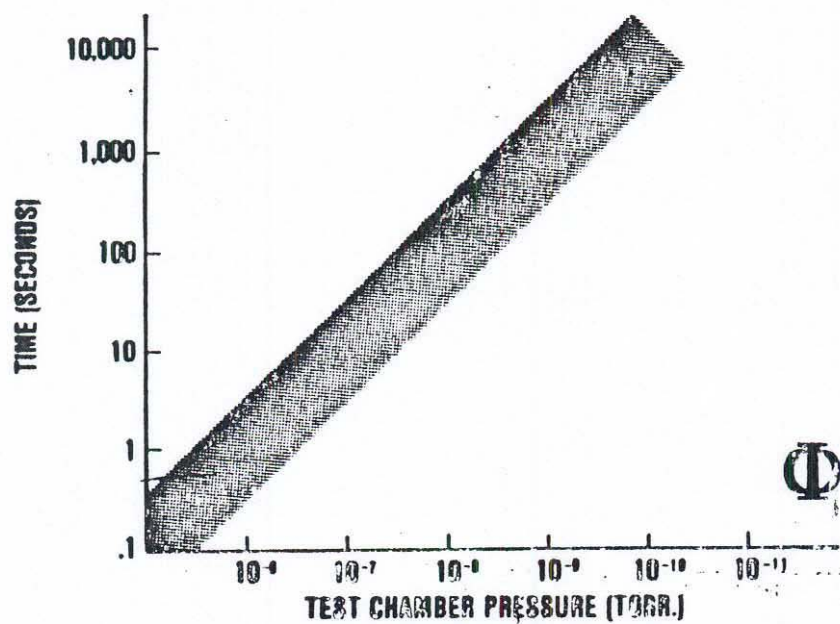
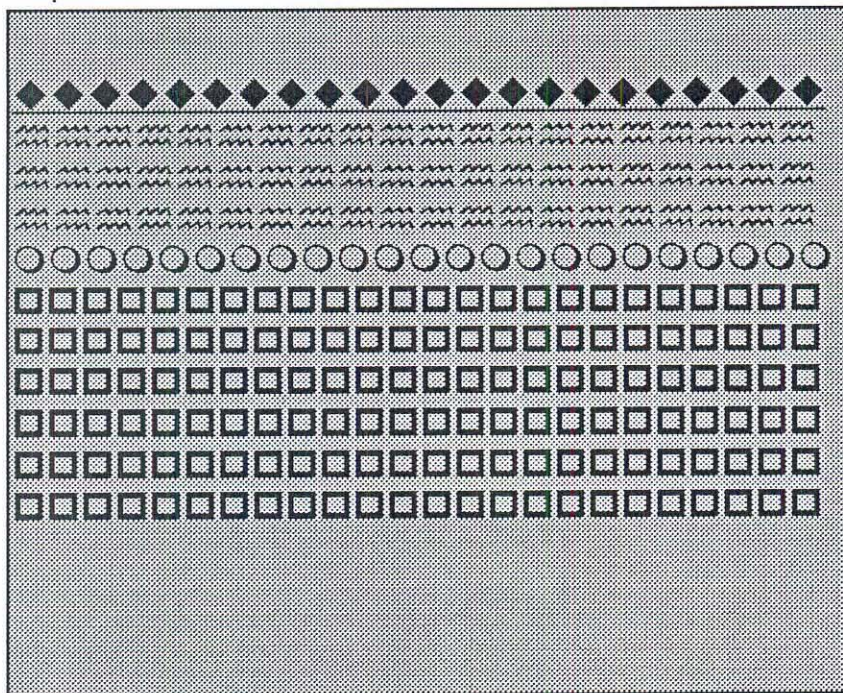


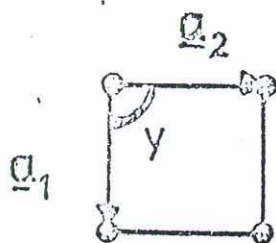
Fig. 1.3

Concepto de superficie



- ➔ superficie externa (diperiódica)
- ➔ película delgada o depósito (periódica en z)
- ➔ superficie del sustrato (diperiódica)
- ➔ sustrato periódico (periodicidad en 3-D)

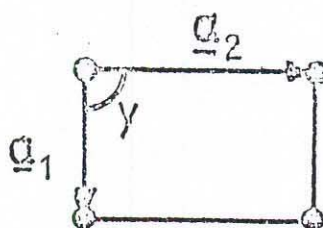
Fig. 2.1



square

$$a_1 = a_2$$

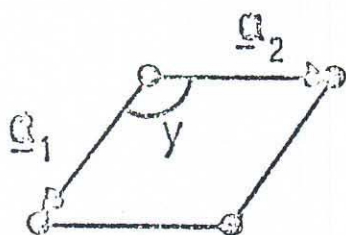
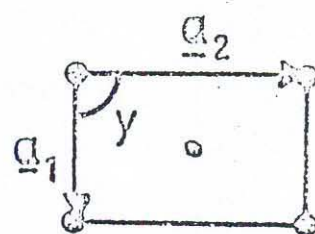
$$\gamma = 90^\circ$$



rectangular

$$a_1 \neq a_2$$

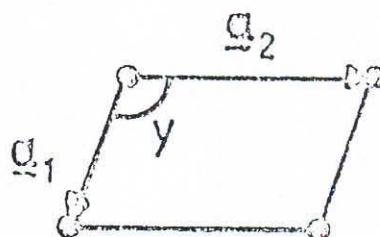
$$\gamma = 90^\circ$$



hexagonal

$$a_1 = a_2$$

$$\gamma = 120^\circ$$



oblique

$$a_1 \neq a_2$$

$$\gamma \neq 90^\circ$$

Fig. 2.2

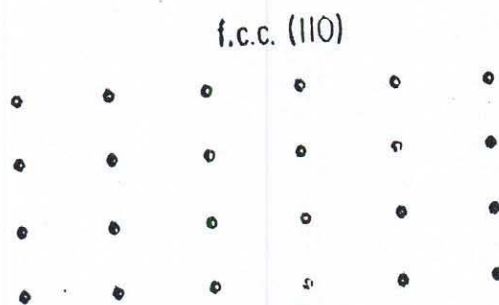
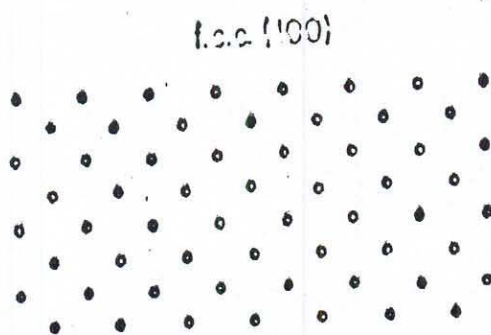
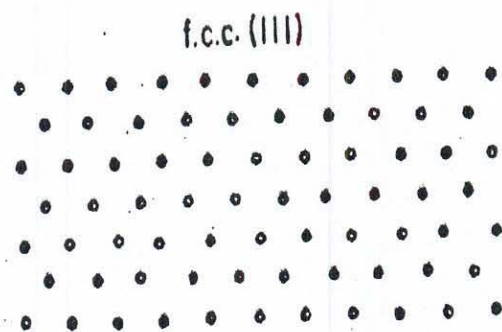
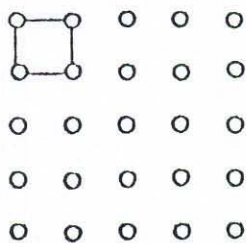


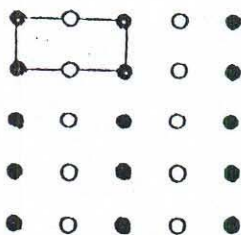
Fig. 2.3

Fig. 2.4



(1 × 1)

Fig. 2.5



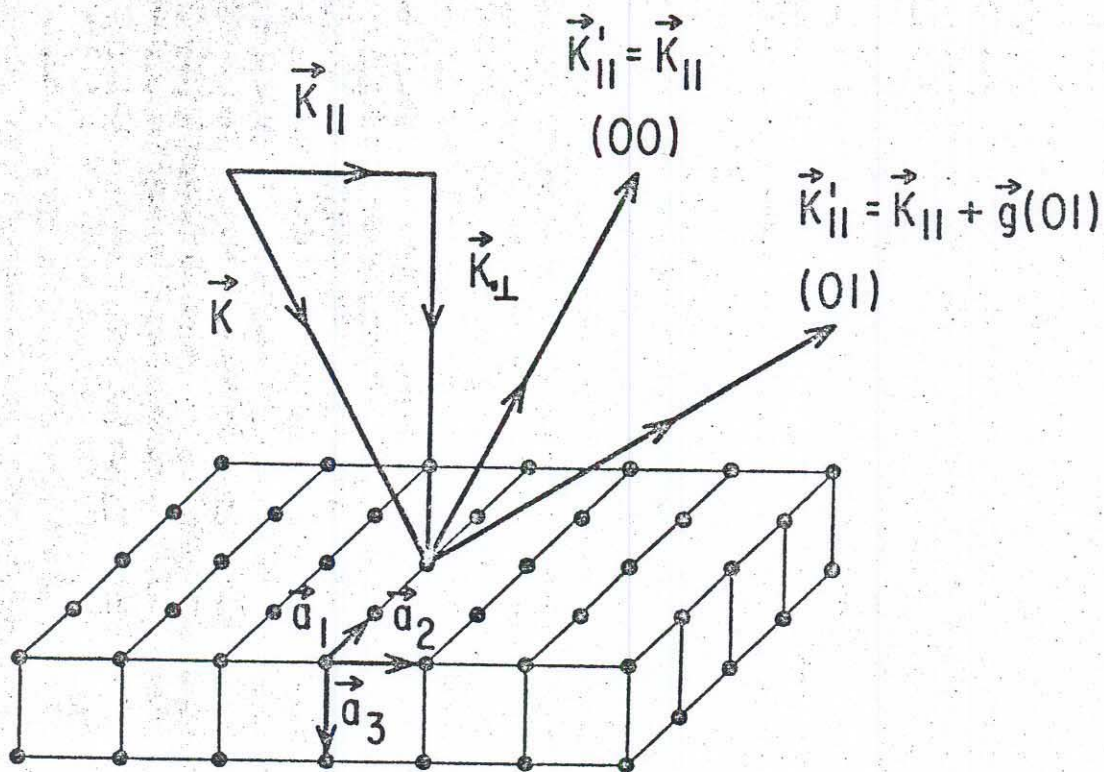
(2 × 1)

Fig. 2.6



c(2 × 2)

LEED INTENSITIES FROM (CLEAN) SURFACES I: GEOMETRY



$$\vec{g}(hk) = 2\pi [h\vec{b}_1 + k\vec{b}_2]$$

$$\vec{b}_1 = \vec{a}_2 \times \vec{a}_3 / [\vec{a}_1 \cdot \vec{a}_2 \times \vec{a}_3]$$

Fig. 2.7

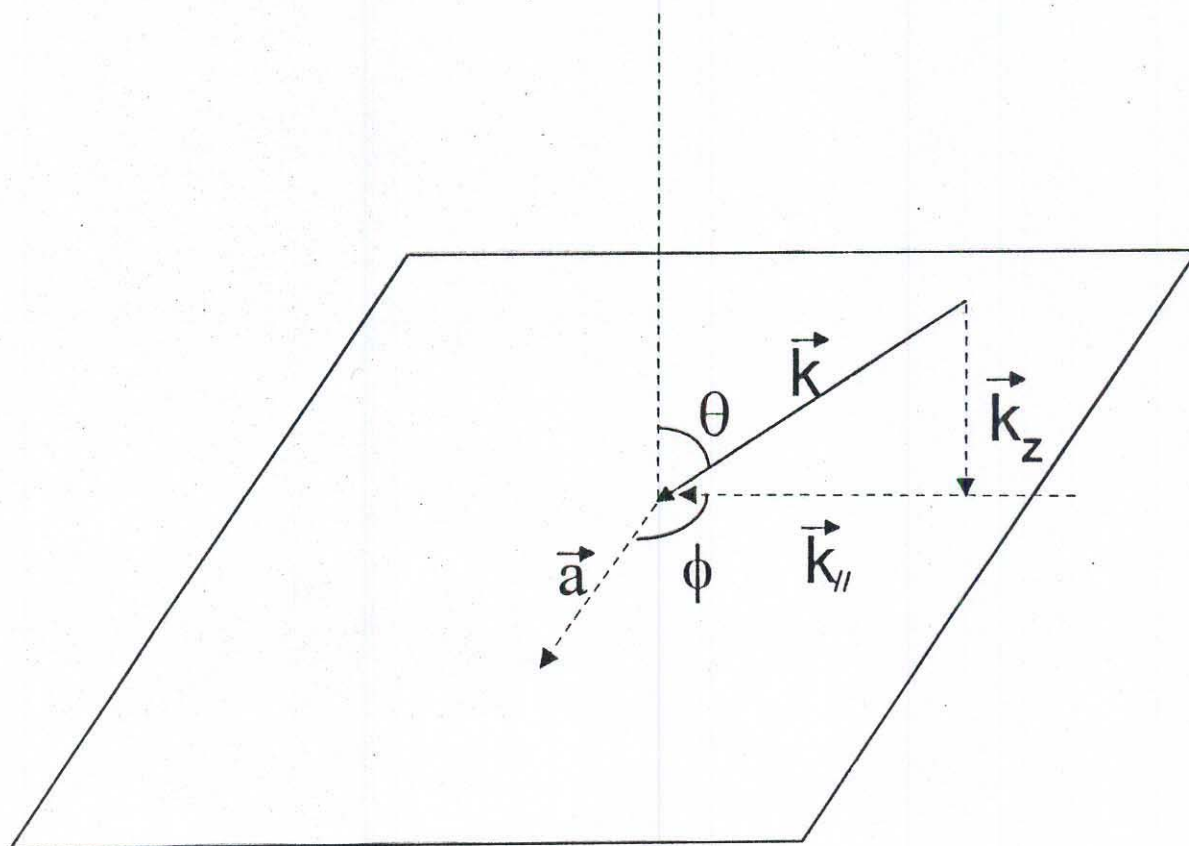
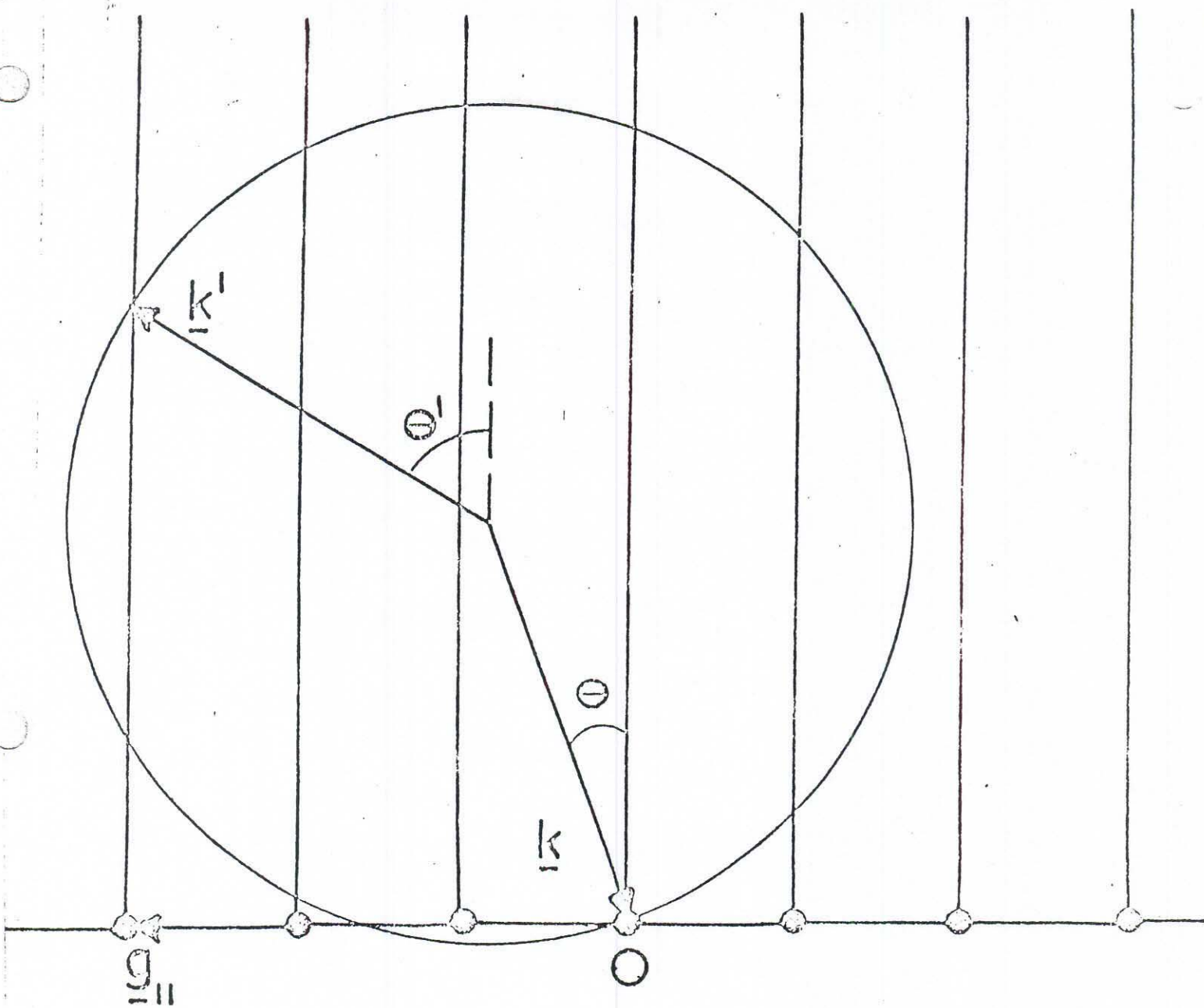


Fig. 2.8



$$k' = k$$

$$\underline{k}'_{||} = \underline{k}_{||} + \underline{g}_{||}$$

Fig. 2.9

Tabla 1. Celdas unitarias de la superficie de materiales comunes y su respectiva notación.

Substrate	Surface Unit Cell	
	Wood Notation	Matrix Notation
fcc(100),bcc(100), diamond(100), zincblende(100)	$p(1 \times 1) = (1 \times 1)$	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 1) = (2 \times 1)$	$\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(1 \times 2) = (1 \times 2)$	$\begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix}$
	$c(2 \times 2) = (\sqrt{2} \times \sqrt{2})R45^\circ$	$\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$
	$p(2 \times 2) = (2 \times 2)$	$\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$
	$(2\sqrt{2} \times \sqrt{2})R45^\circ$	$\begin{pmatrix} 2 & 2 \\ 1 & 1 \end{pmatrix}$
	$c(4 \times 2)$	$\begin{pmatrix} 2 & 1 \\ 0 & 2 \end{pmatrix}$
fcc(111),hcp(0001), diamond(111),zincblende(111), graphite(0001)	$p(1 \times 1) = (1 \times 1)$	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 1) = c(2 \times 2) = (2 \times 1)$	$\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 2) = (2 \times 2)$	$\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$
	$(\sqrt{3} \times \sqrt{3})R30^\circ$	$\begin{pmatrix} 1 & 1 \\ 1 & 2 \end{pmatrix}$
	$c(4 \times 2)$	$\begin{pmatrix} 2 & 1 \\ 0 & 2 \end{pmatrix}$
	$(\sqrt{7} \times \sqrt{7})R\arctan(\sqrt{3}/5)$	$\begin{pmatrix} 2 & 1 \\ 1 & 3 \end{pmatrix}$
fcc(110),diamond(110), zincblende(110)	$p(1 \times 1) = (1 \times 1)$	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 1) = (2 \times 1)$	$\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(1 \times 2) = (1 \times 2)$	$\begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix}$
	$c(2 \times 2)$	$\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$
bcc(110)	$p(1 \times 1) = (1 \times 1)$	$\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 1) = (2 \times 1)$	$\begin{pmatrix} 2 & 0 \\ 0 & 1 \end{pmatrix}$
	$p(2 \times 2) = (2 \times 2)$	$\begin{pmatrix} 2 & 0 \\ 0 & 2 \end{pmatrix}$

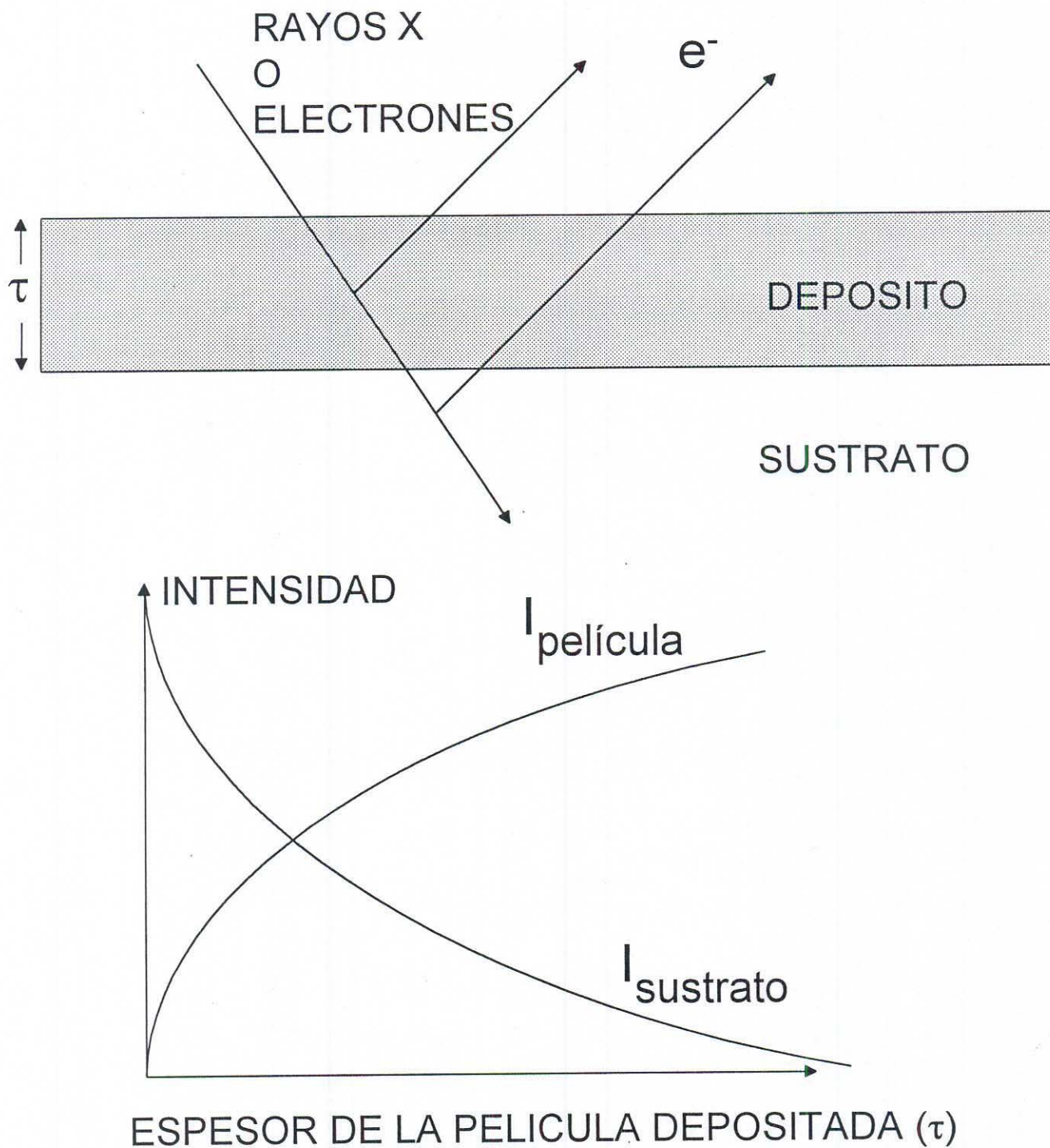
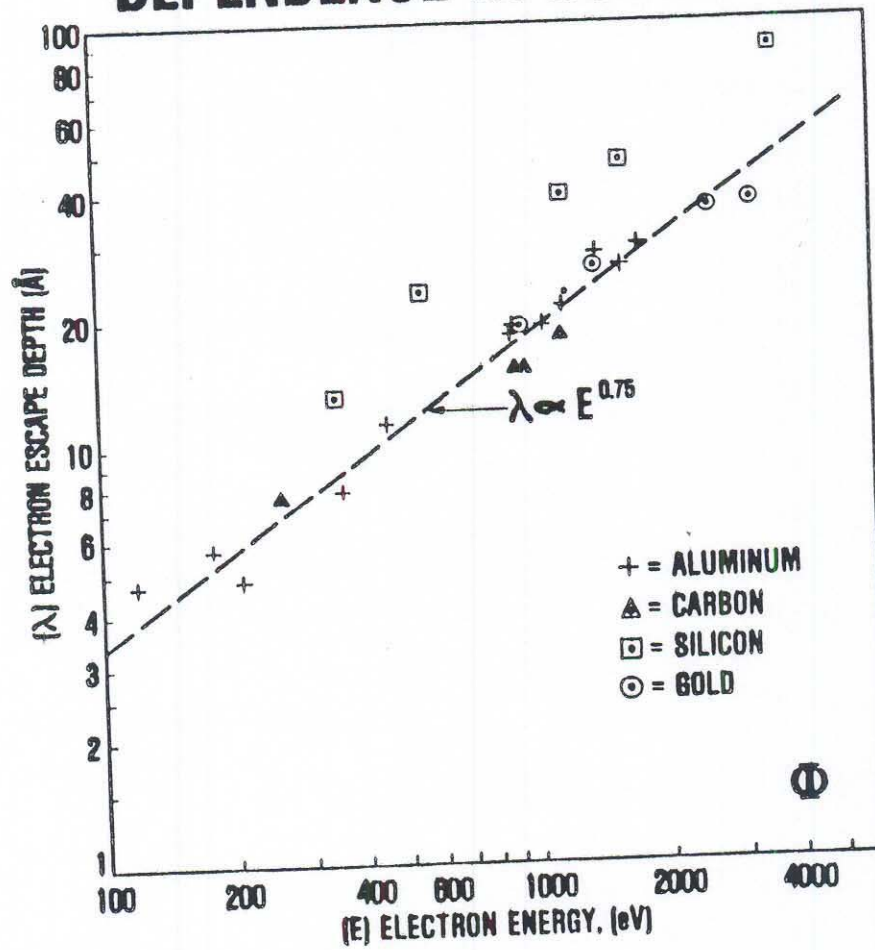


Fig. 3.1 Distancia de atenuación de la señal Auger en un analizador tipo CMA, considerando una película delgada sobre la superficie

ELECTRON ESCAPE DEPTH DEPENDENCE IN SOLIDS



C.J. Powell, Surf. Sci., 44 (1974) 29

Fig. 3.2

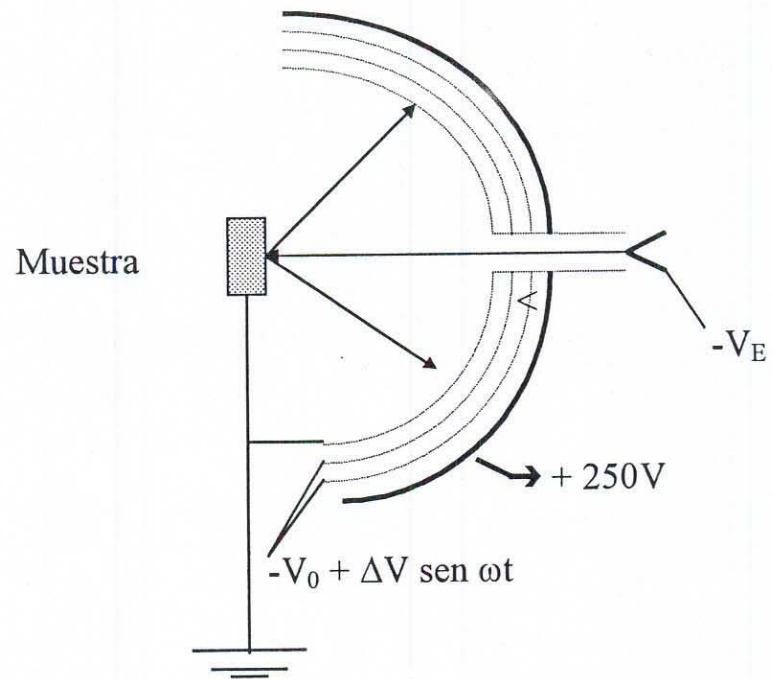


Fig. 3. 3 Analizador de campo retardante

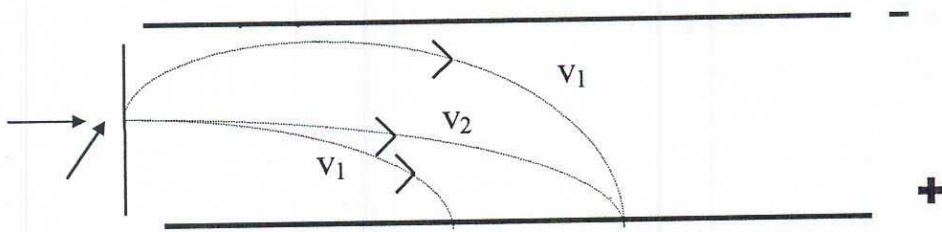


Fig. 3.4 (a) Trayectorias electrónicas en un capacitor de placas paralelas

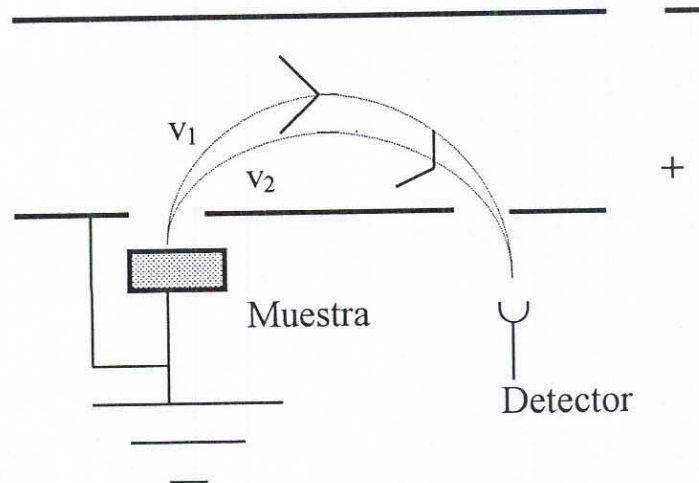


Fig. 3.4 (b) Configuración de enfoque en un sistema de espejos paralelos.

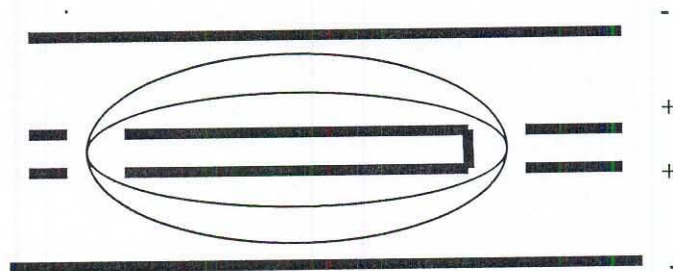


Fig. 3.5 Analizador de espejo cilíndrico

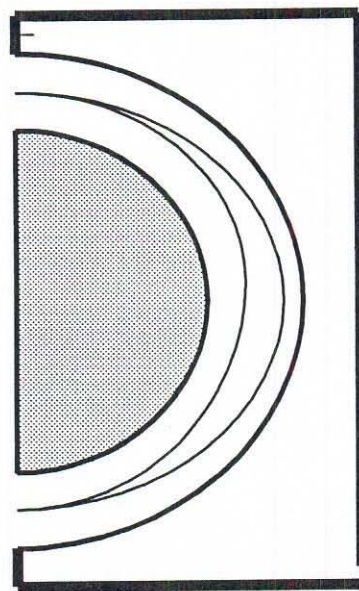


Fig.3.6 Analizador hemiesférico concéntrico

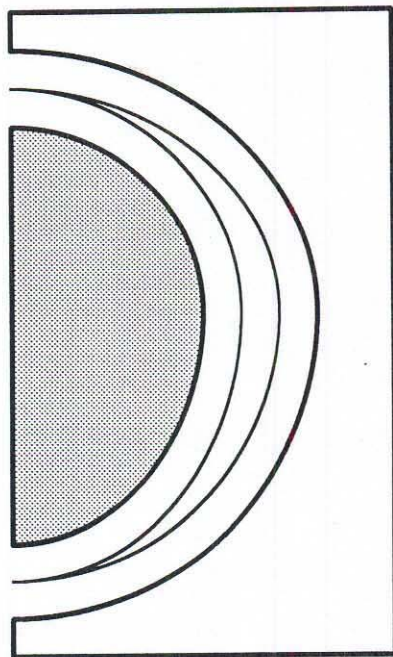


Fig. 3.5 Analizador hemiesférico concéntrico

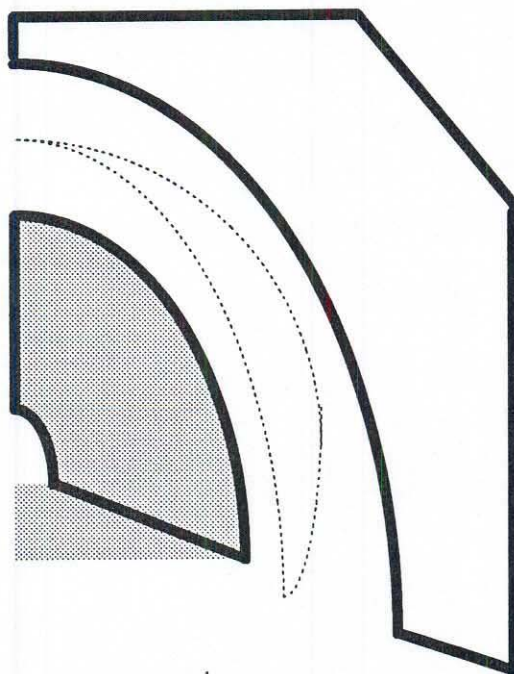
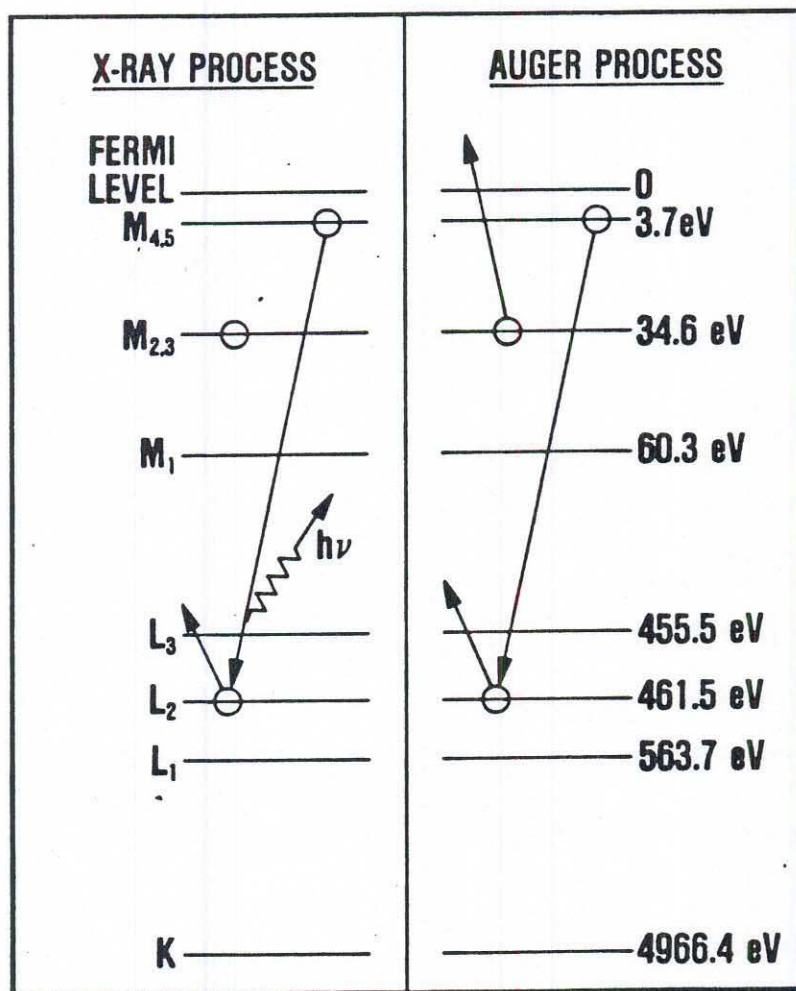


Fig. 3.6 Analizador de sector de 127°

EXCITATION PROCESSES IN TITANIUM



$$h\nu = E_{L_2} - E_{M_4} = 457.8 \text{ eV}$$

$$\lambda = 27.1 \text{ \AA}$$

$$E_{\text{AUGER}} = E_{L_2} - E_{M_4} - E_{M_3} = 423 \text{ eV}$$

Φ

Fig. 4.1

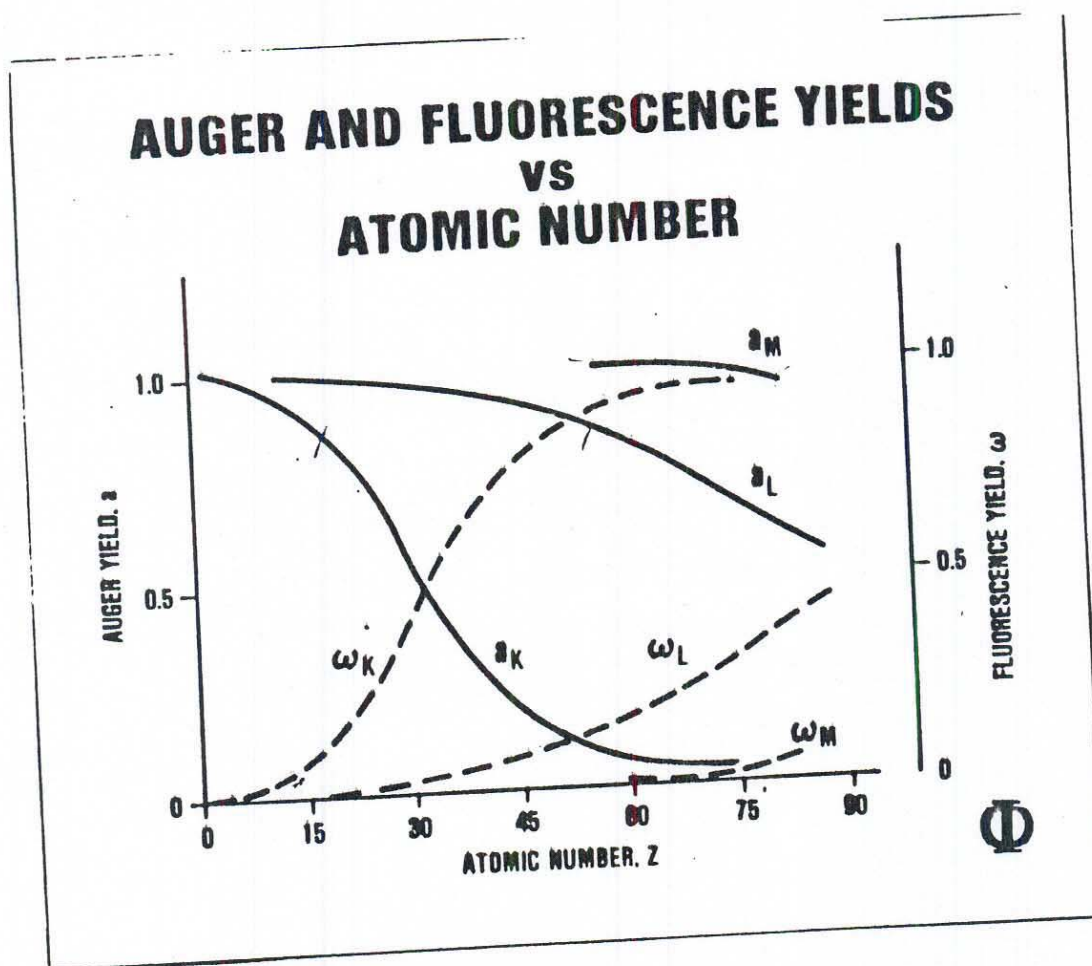


Fig. 4.2

$E_p = 5 \text{ keV}$

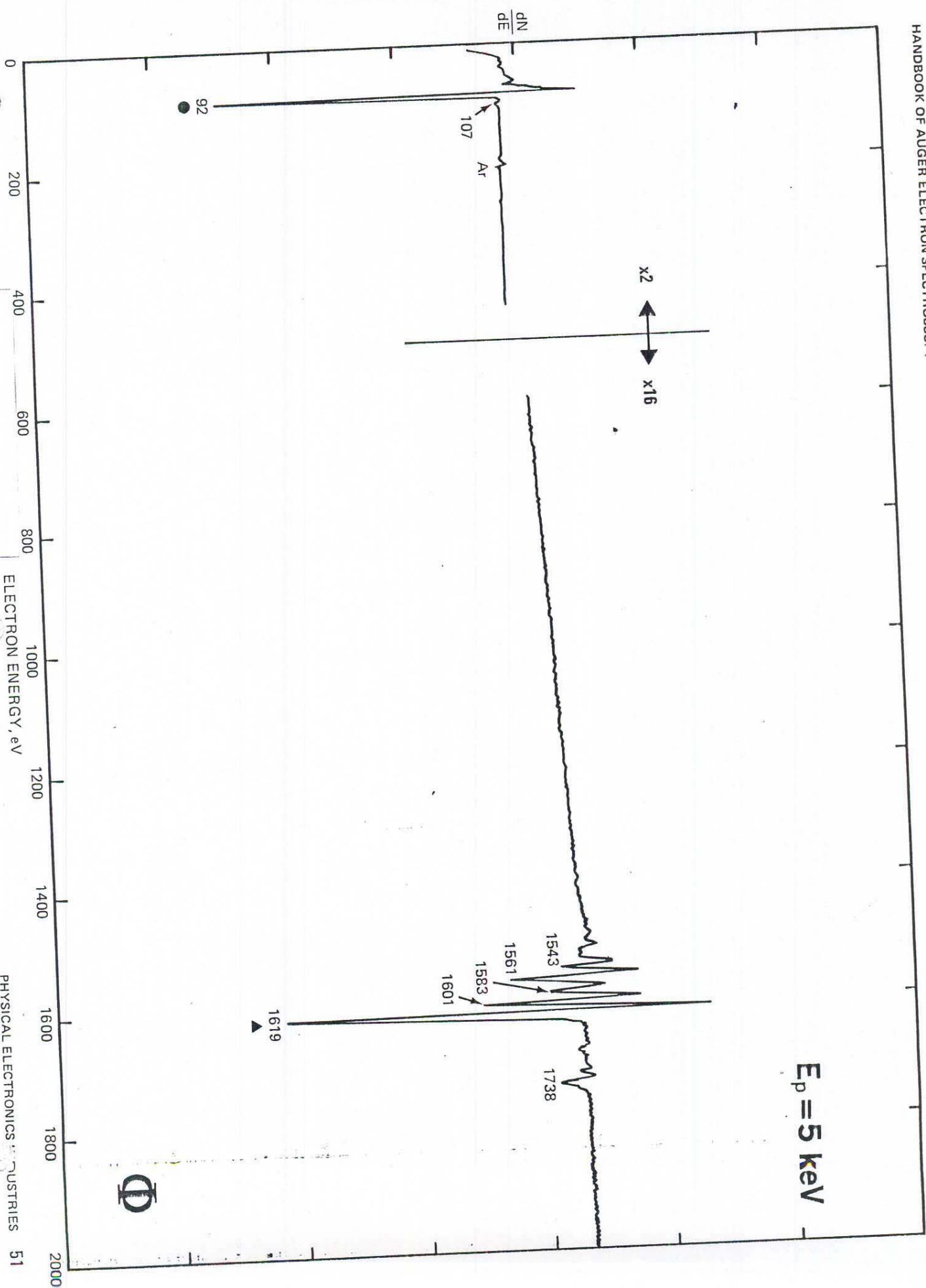


Fig. 4.3

ELECTRON ENERGY, eV

PHYSICAL ELECTRONICS INDUSTRIES 51



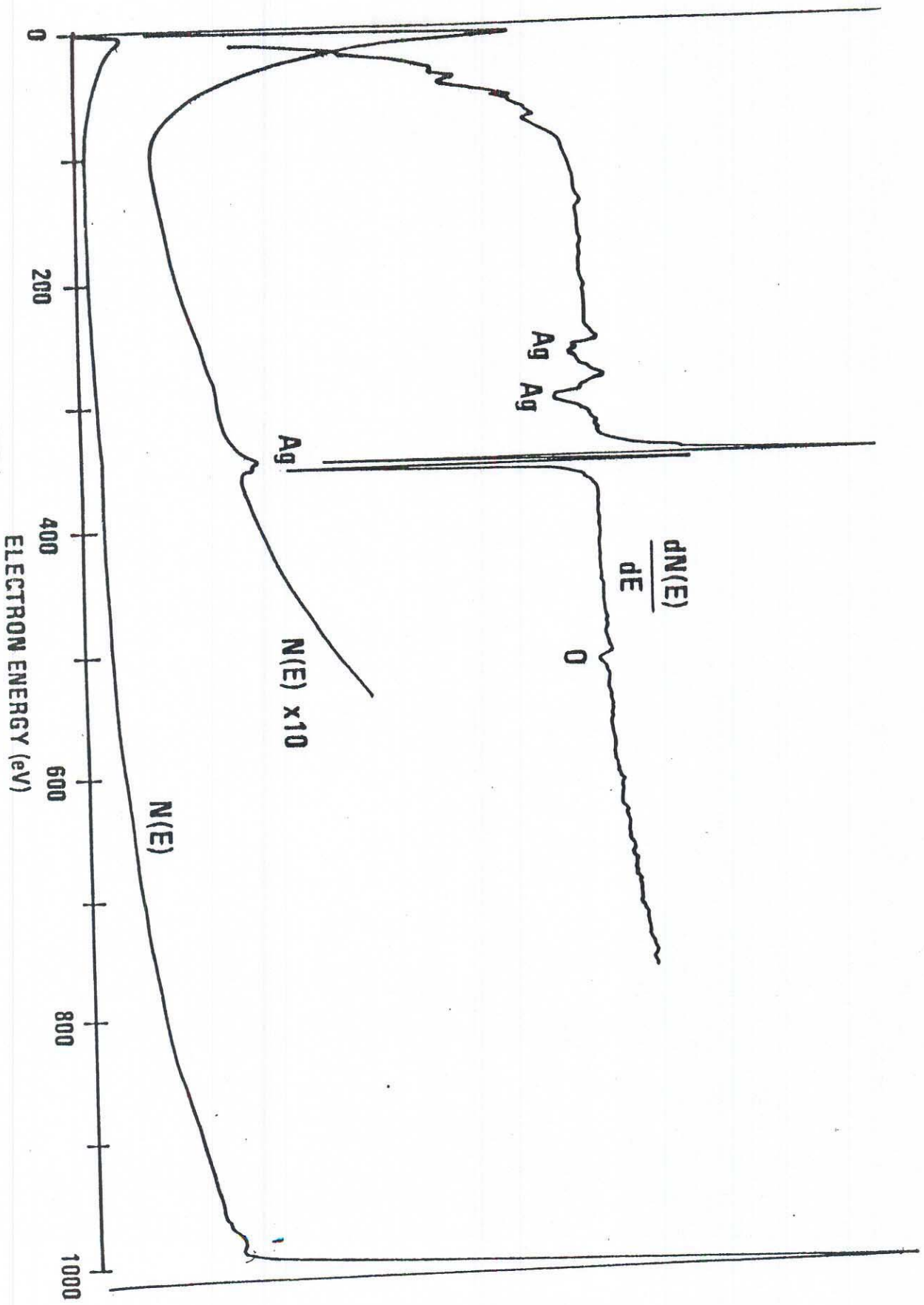


Fig. 4.5

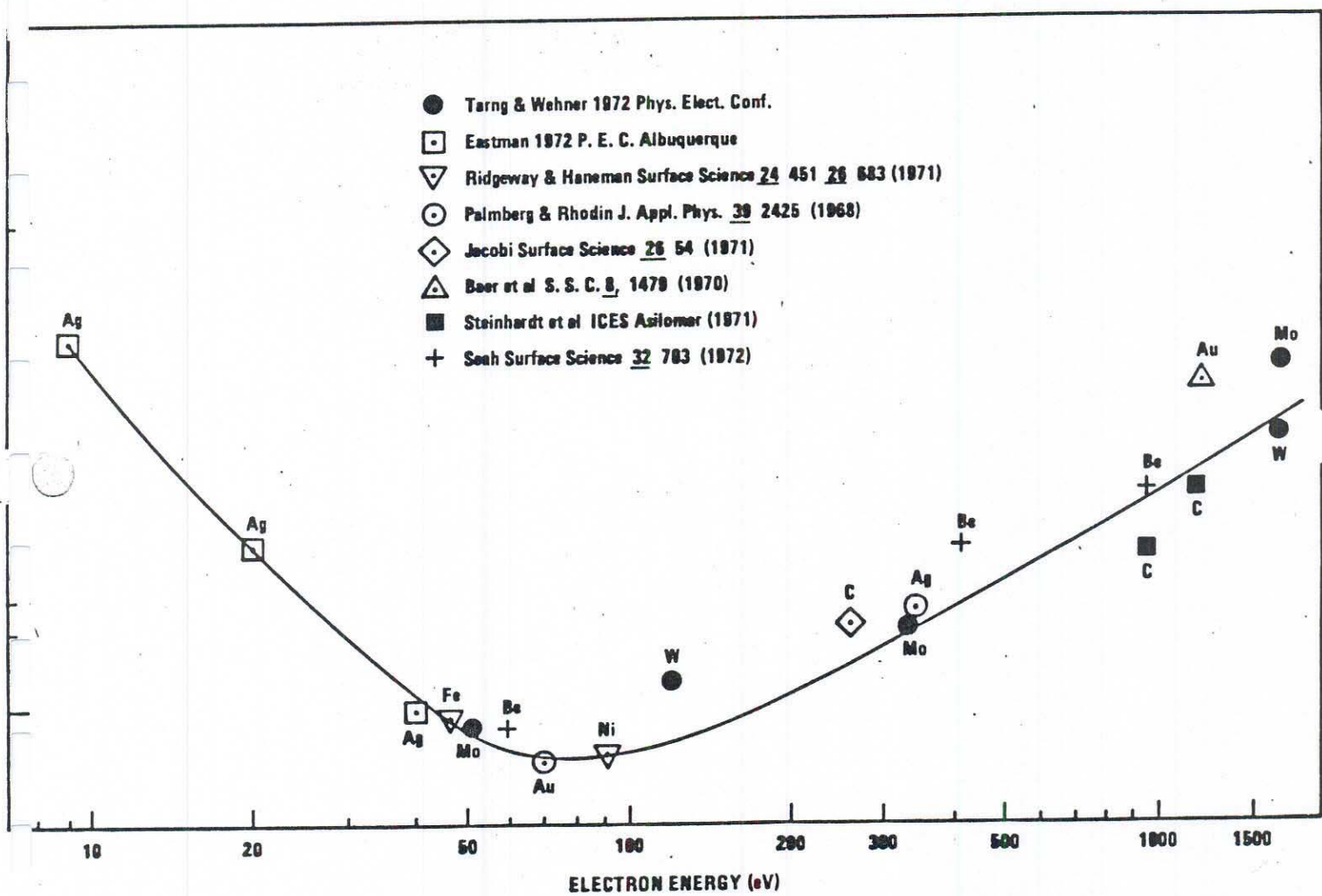


Fig. 4.6

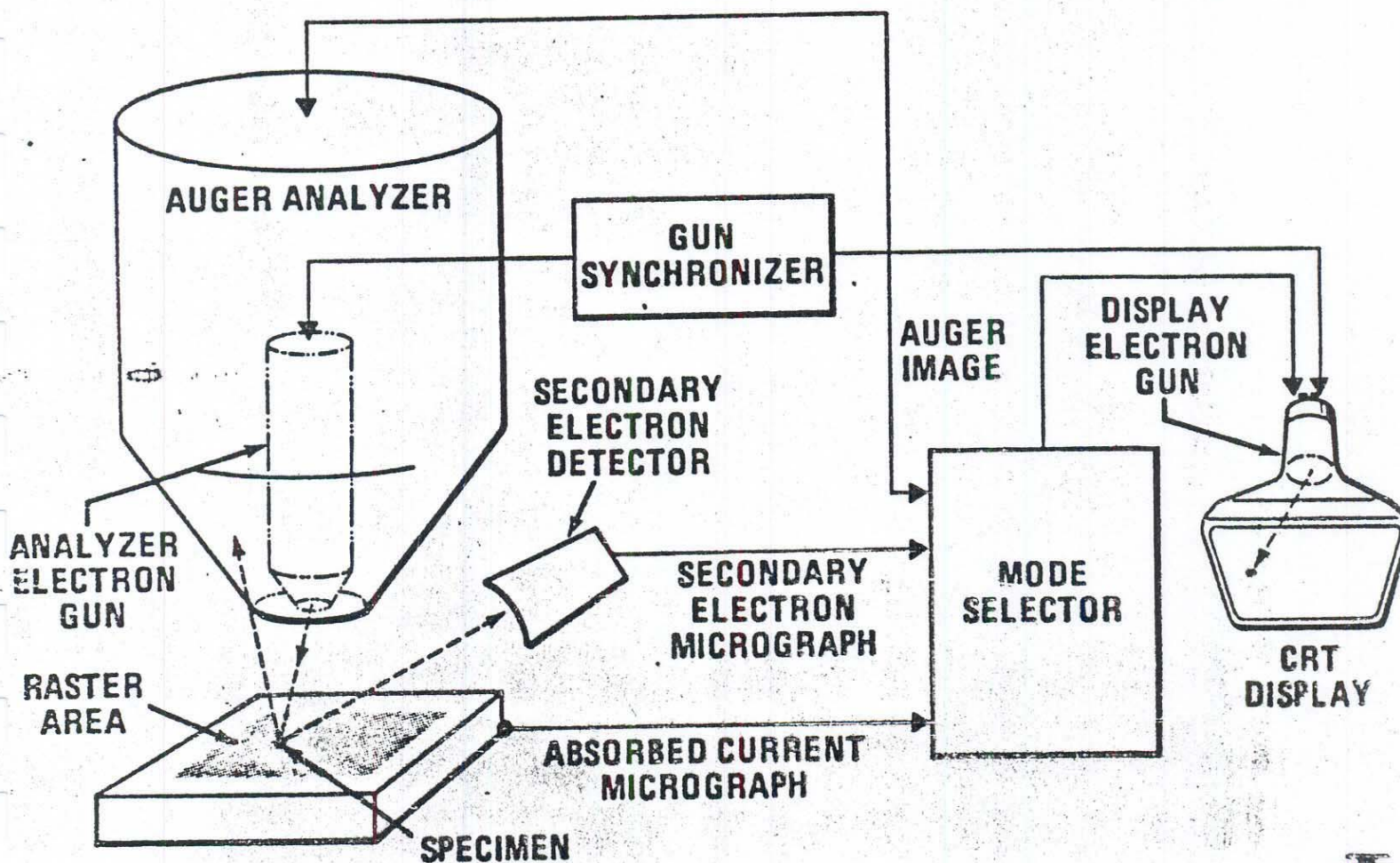
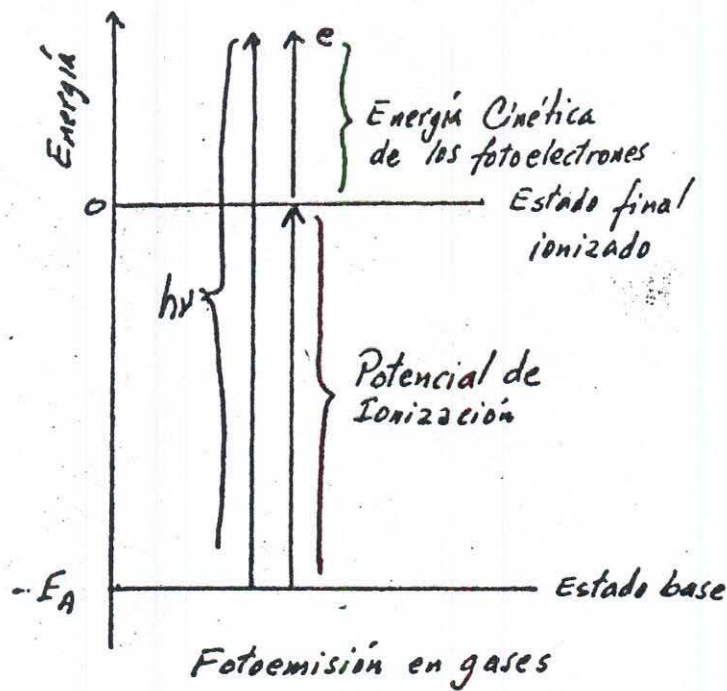
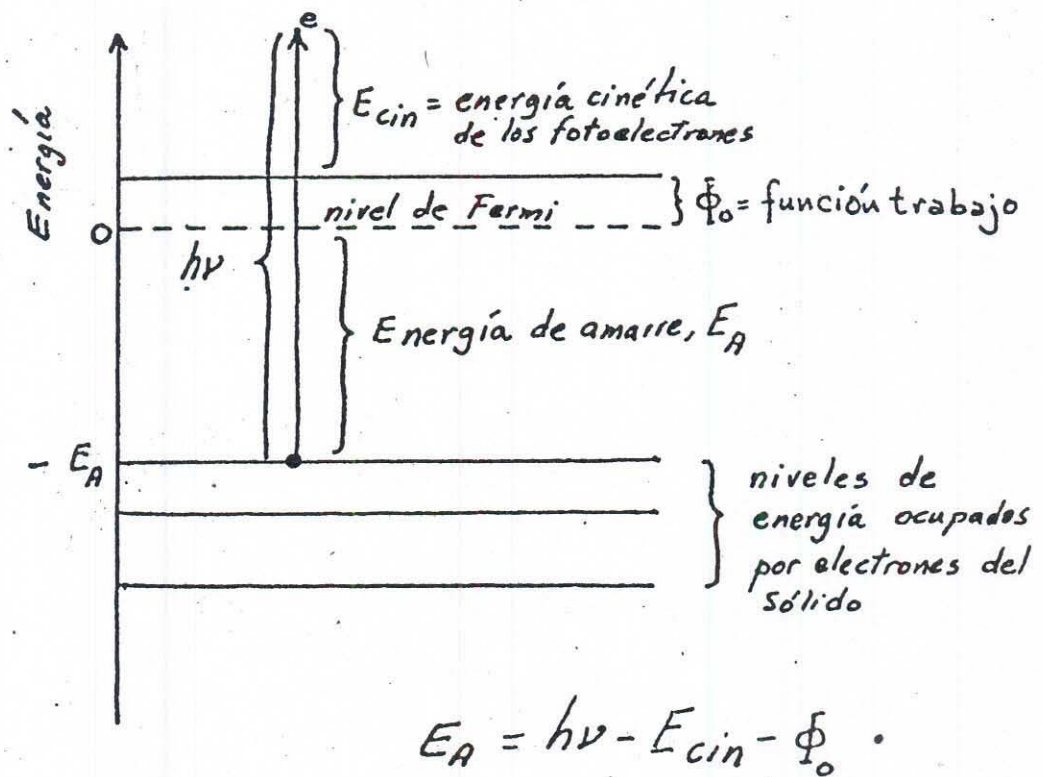


Fig. 4.7



$$E_{cin} = h\nu - E_A$$

$$E_A = h\nu - E_{cin}$$



$$E_A = h\nu - E_{cin} - \Phi_0$$

Fotoemisión en sólidos

Fig. 5.1

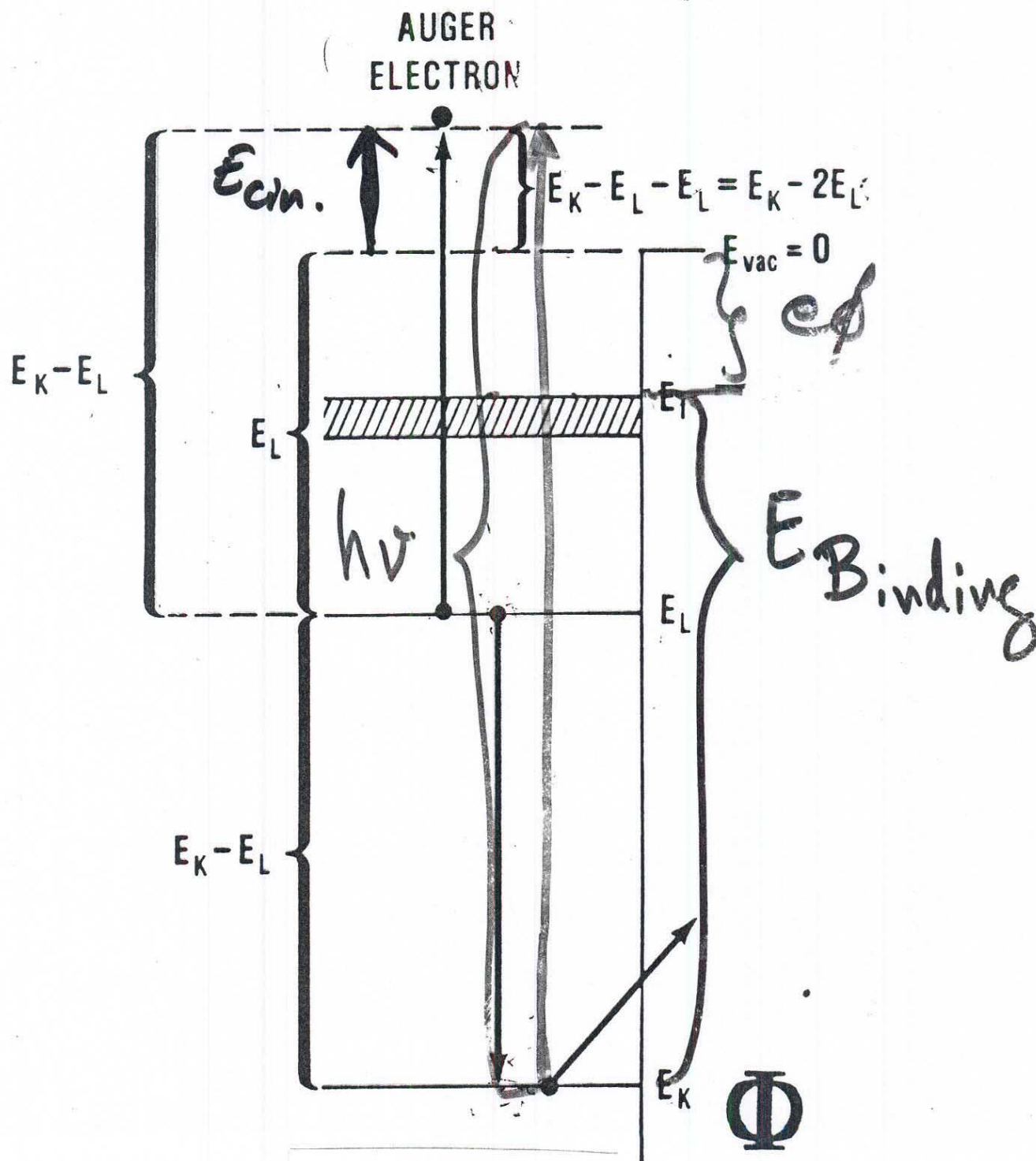
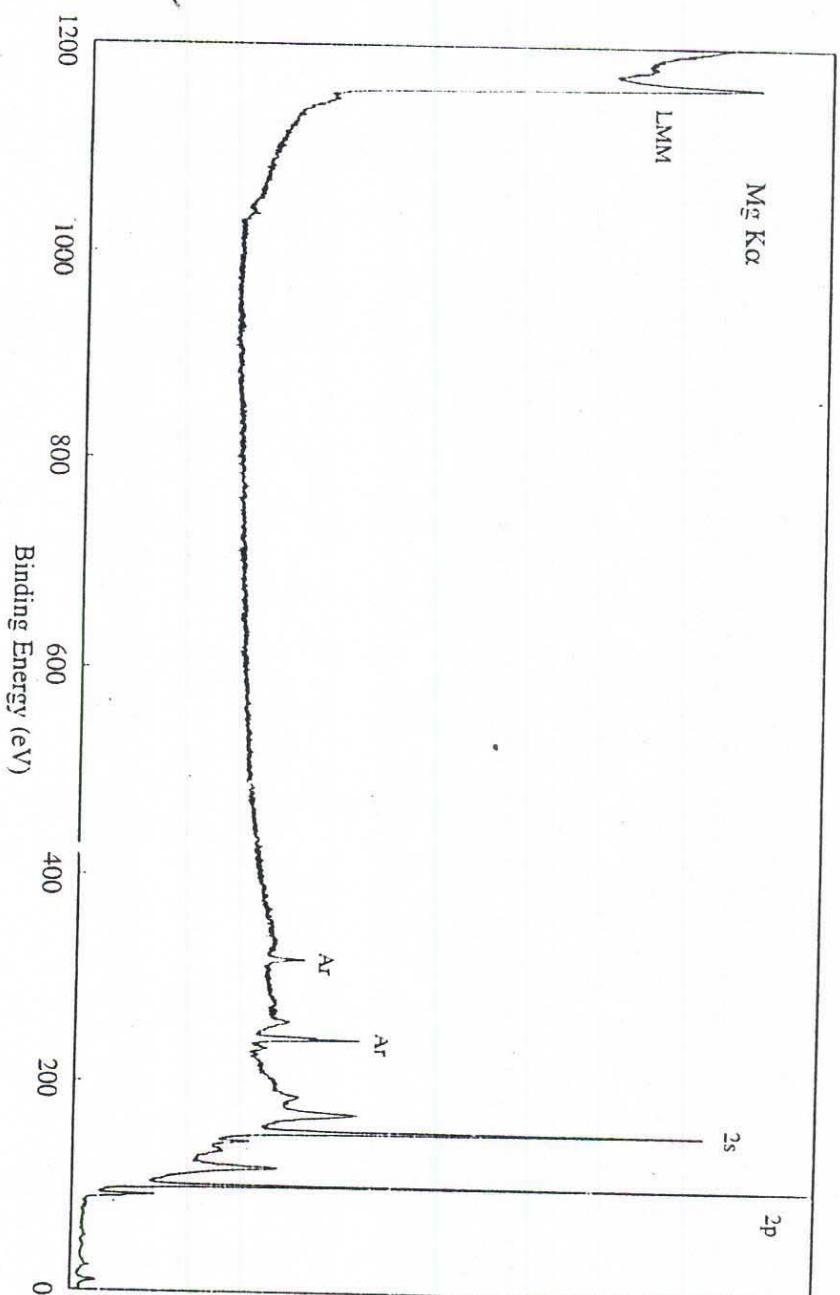
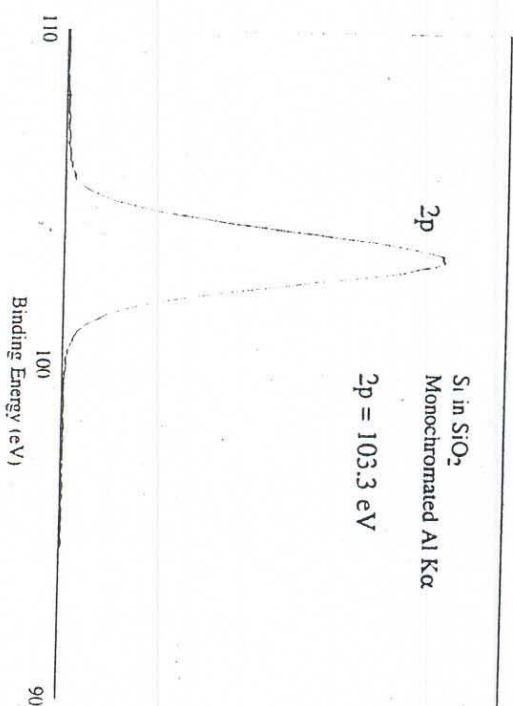


Fig. 5.2



Compound Type	98	101	104
Silicides			
Silicon			
Carbides			
Nitrides			
Silicones (Silanes)			
Silicates			
Silica			

Fig. 5.3



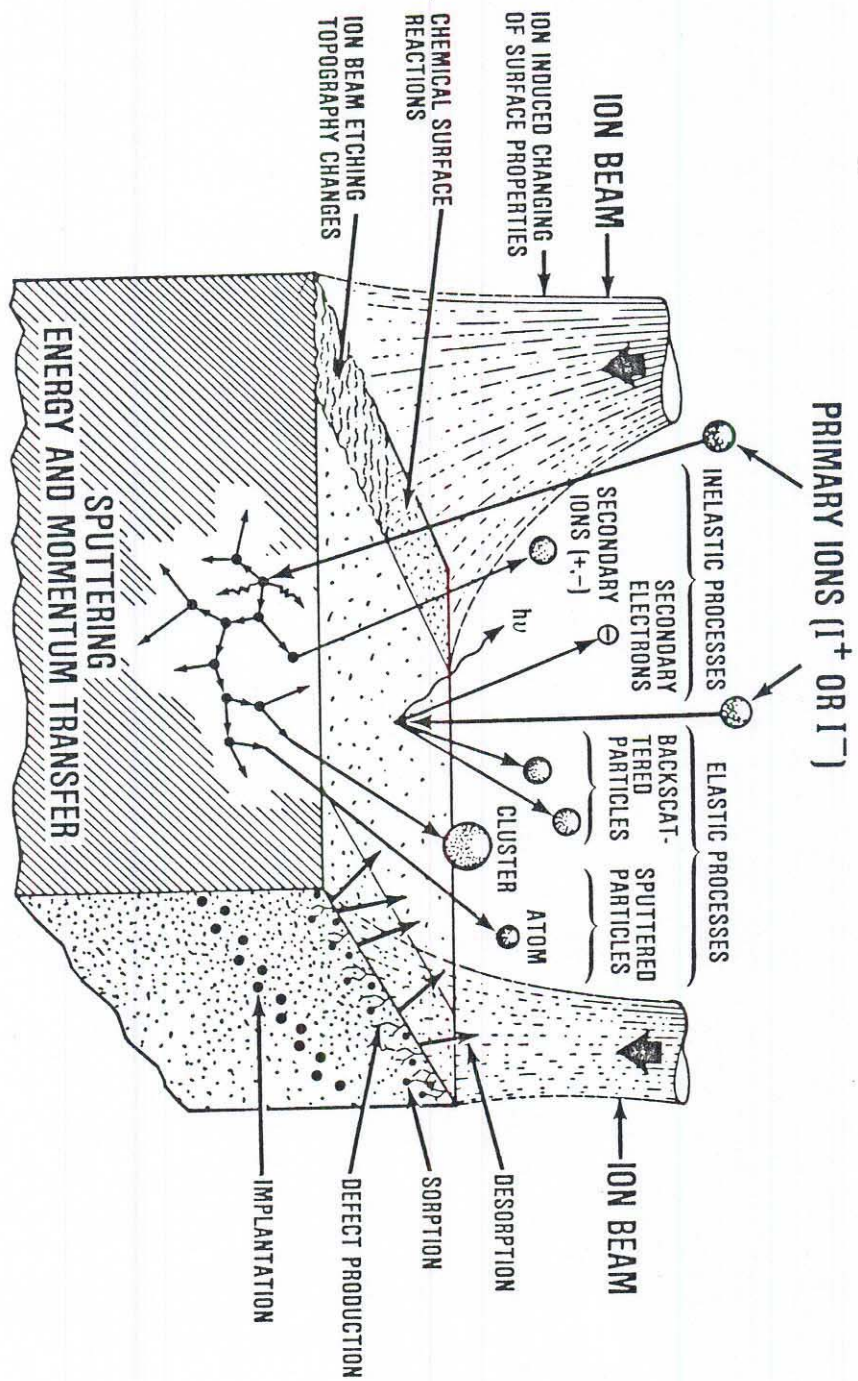


Fig. 6.1

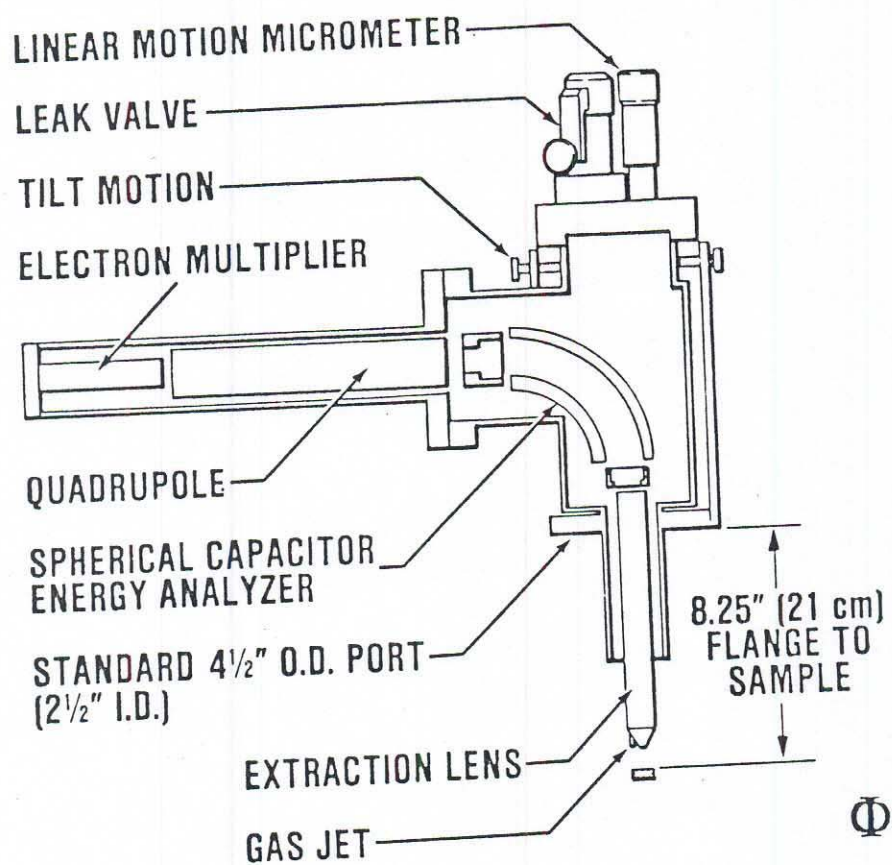


Fig. 6.2 Outline of SIMS II Optics.

Saha-Eggert plot of the logarithm of reduced ion current i_M^+ divided by the known atomic concentration c_M against the ionisation potential I_p , from a glass sample. The straight line corresponds to a 'plasma temperature' of 13 730 K (Morgan & Werner, 1977).

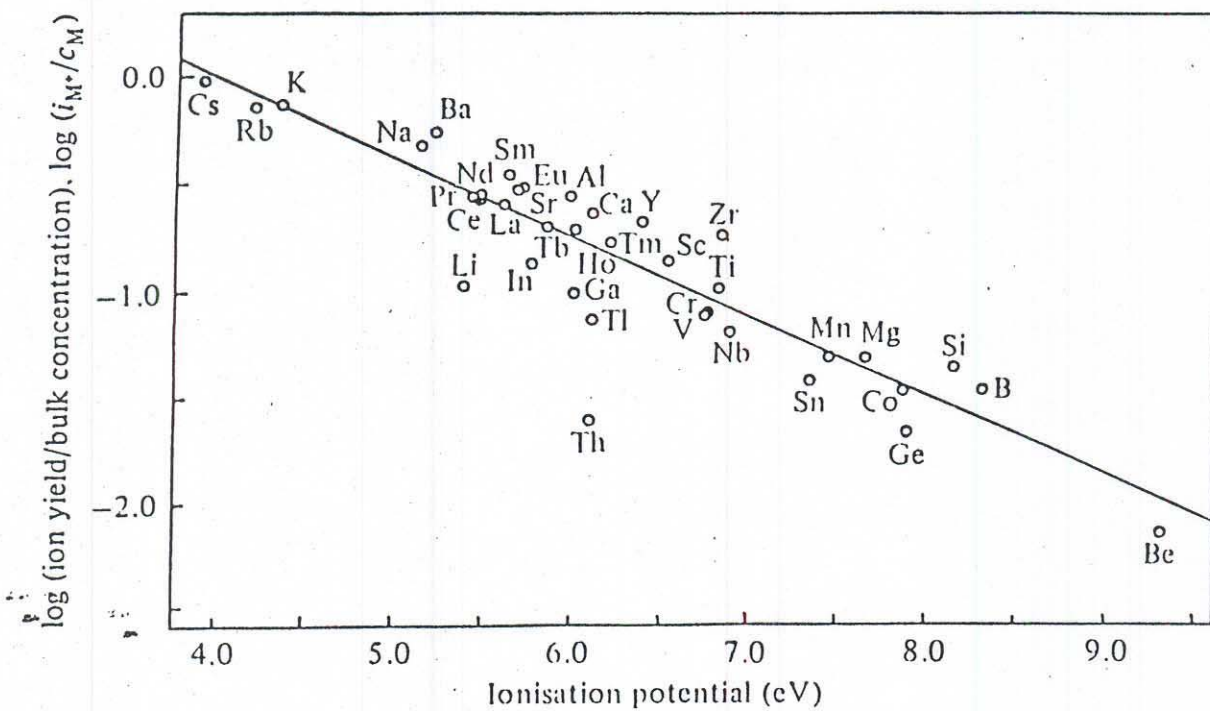


Fig. 6.3