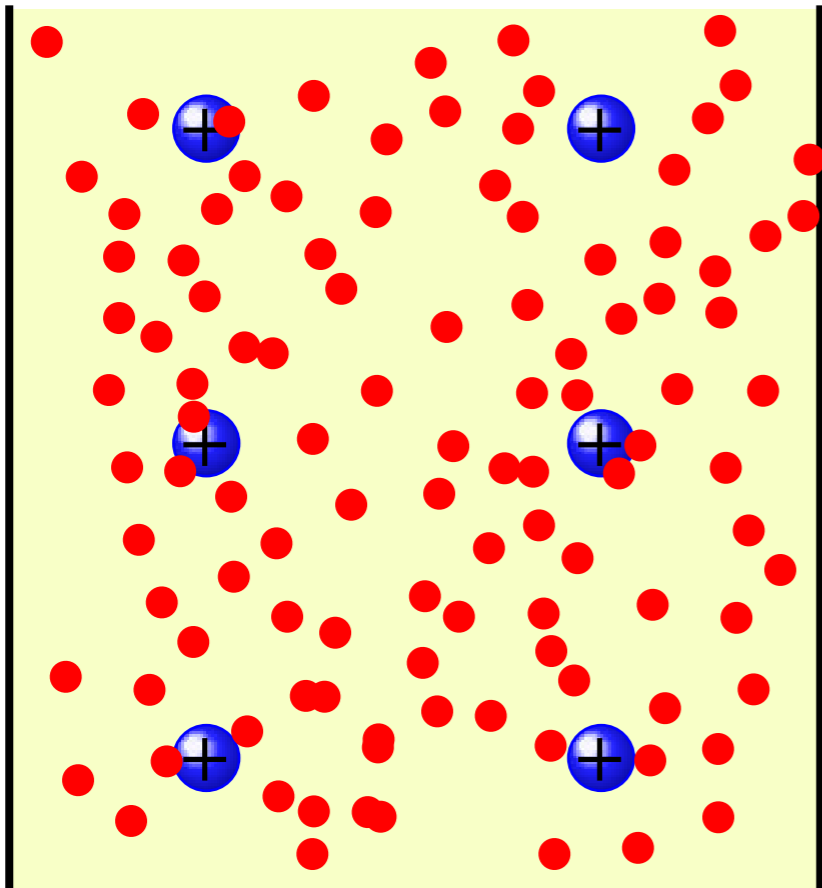


Bewegung des Elektronenkollektivs



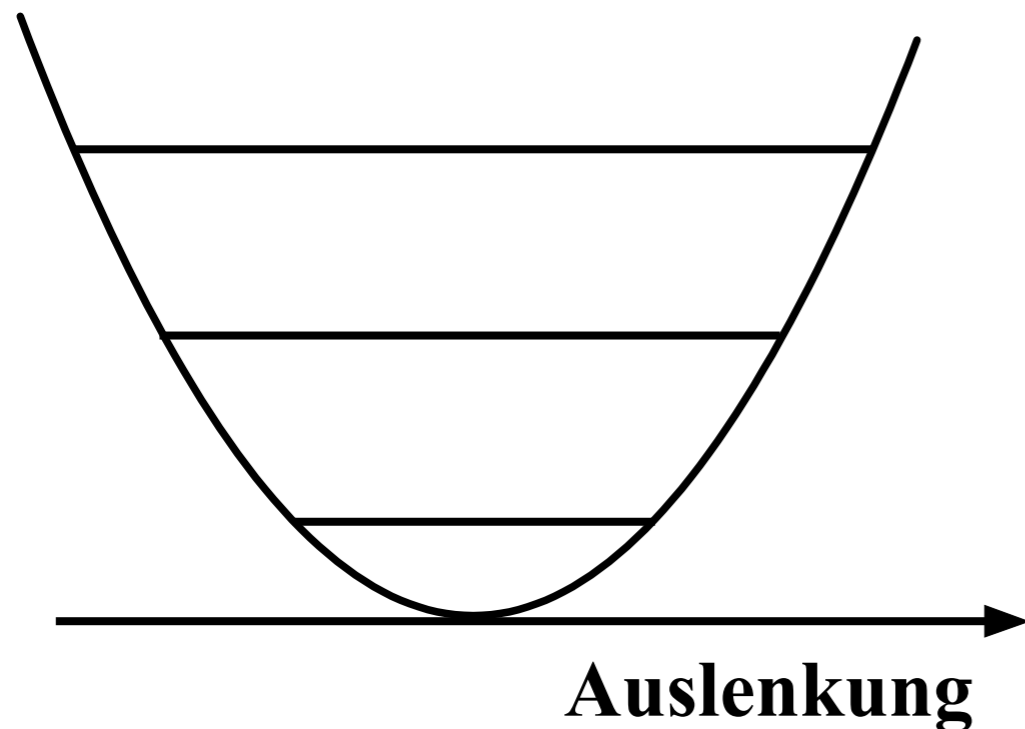
Verschiebung um x erzeugt Polarisation

$$P(x) = - n e x$$

~harmonischer Oszillator

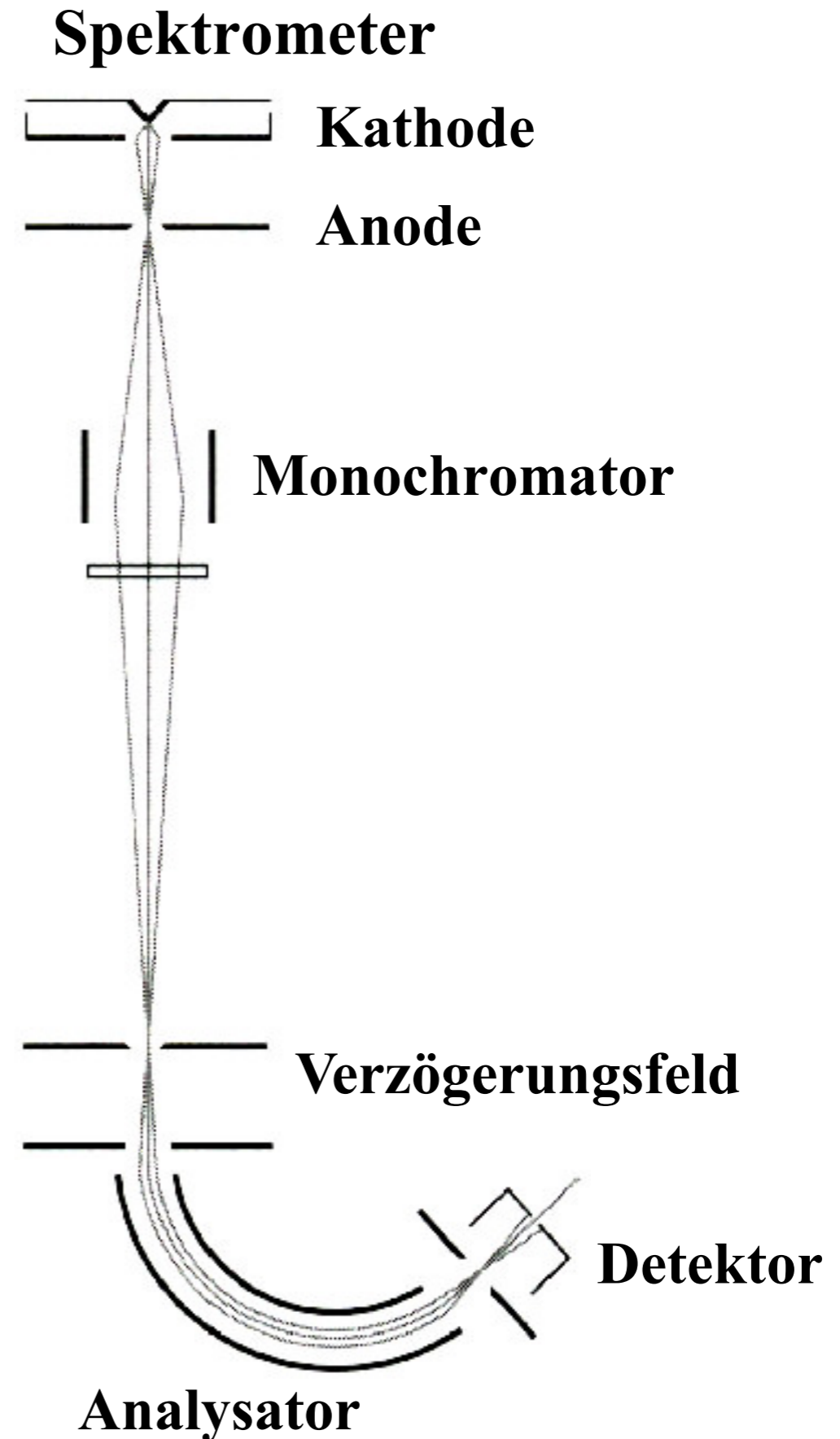
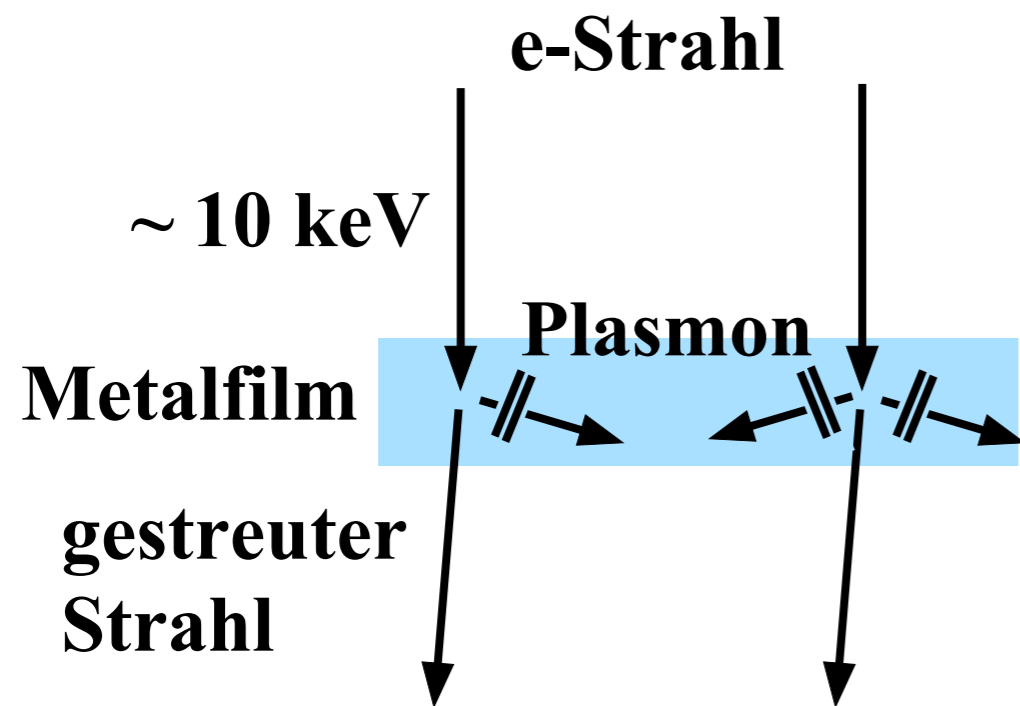
$$E_n = (n+1/2) \hbar \omega_P$$

$$\omega_P = \frac{n e^2}{m_e \epsilon \epsilon_0}$$

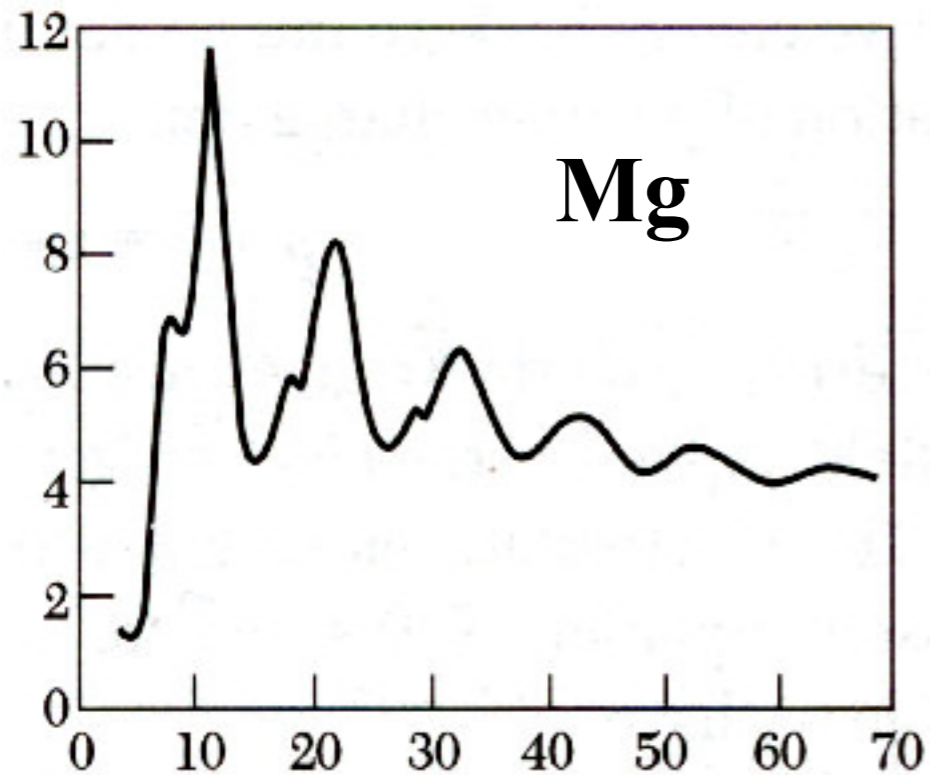
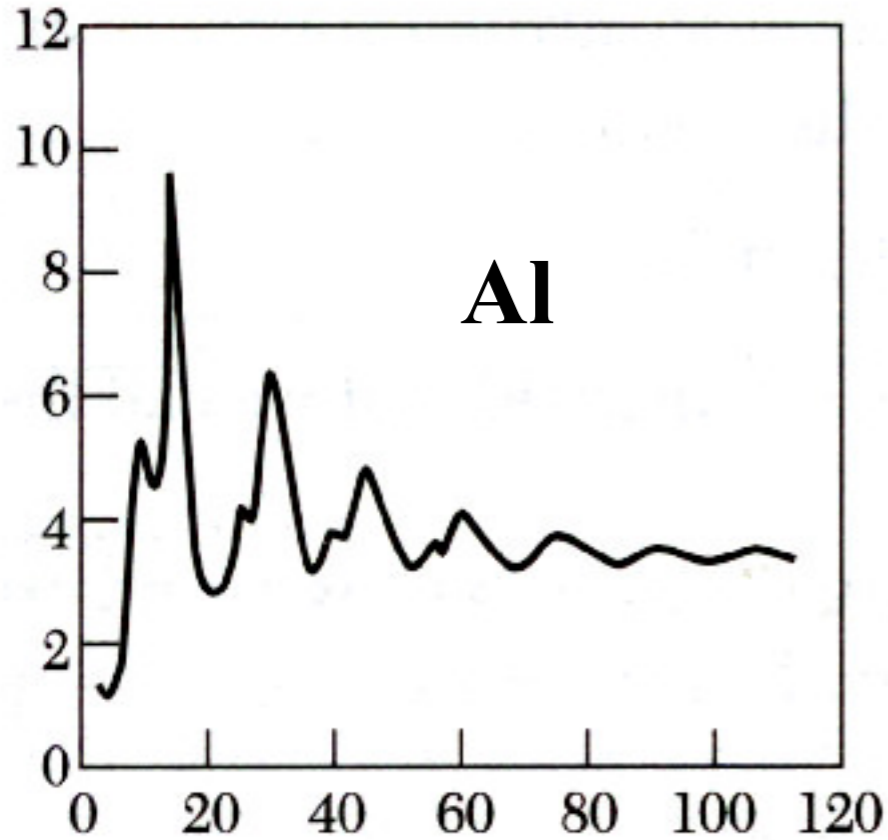


Messung der Plasmonenfrequenz

**Prinzip: Energieverlust
transmittierter Elektronen**



Reflexionsmessungen



Energieverlust / eV

Plasmonenergien

**Oberflächen-
plasmon**



**Volumen-
plasmon**

Plasmonenergie in eV

	Gemessen	Berechnet
Li	7.12	8.02
Na	5.71	5.95
K	3.72	4.29
Mg	10.6	10.9
Al	15.3	15.8