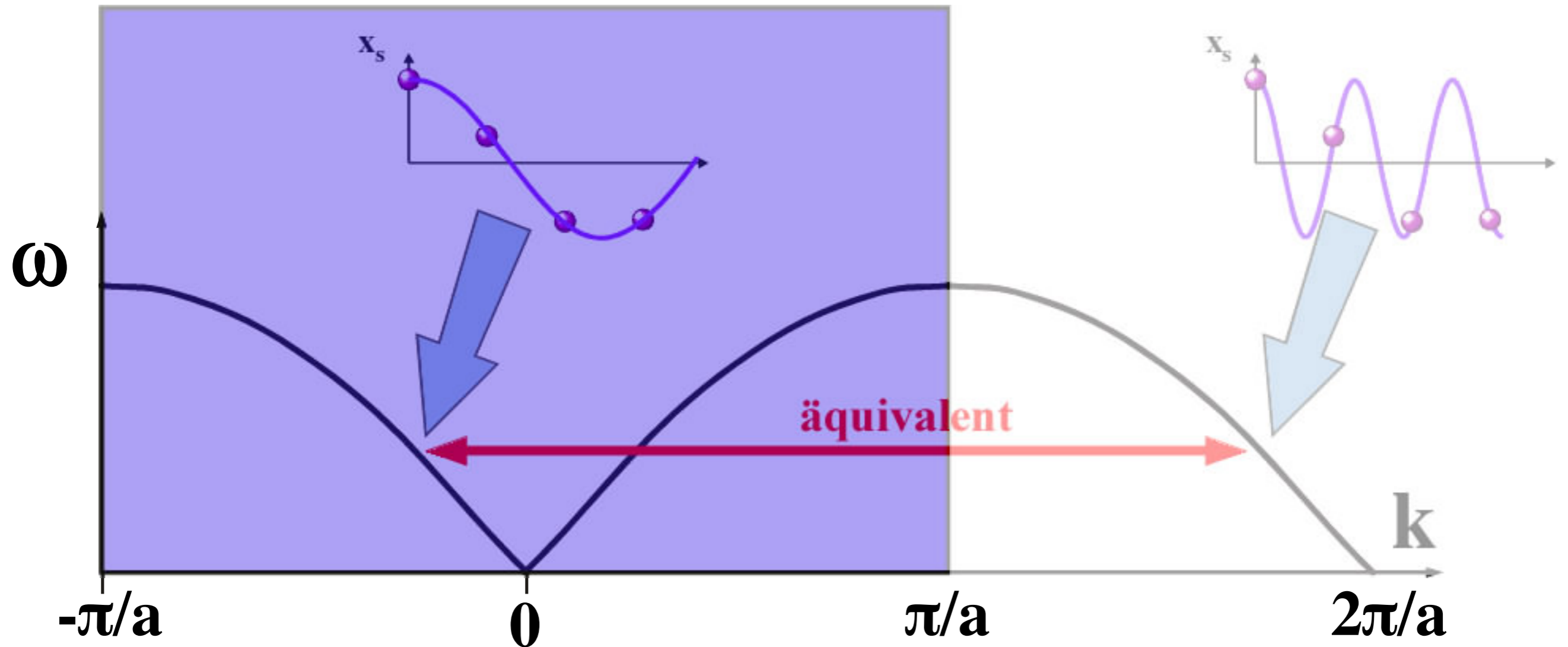


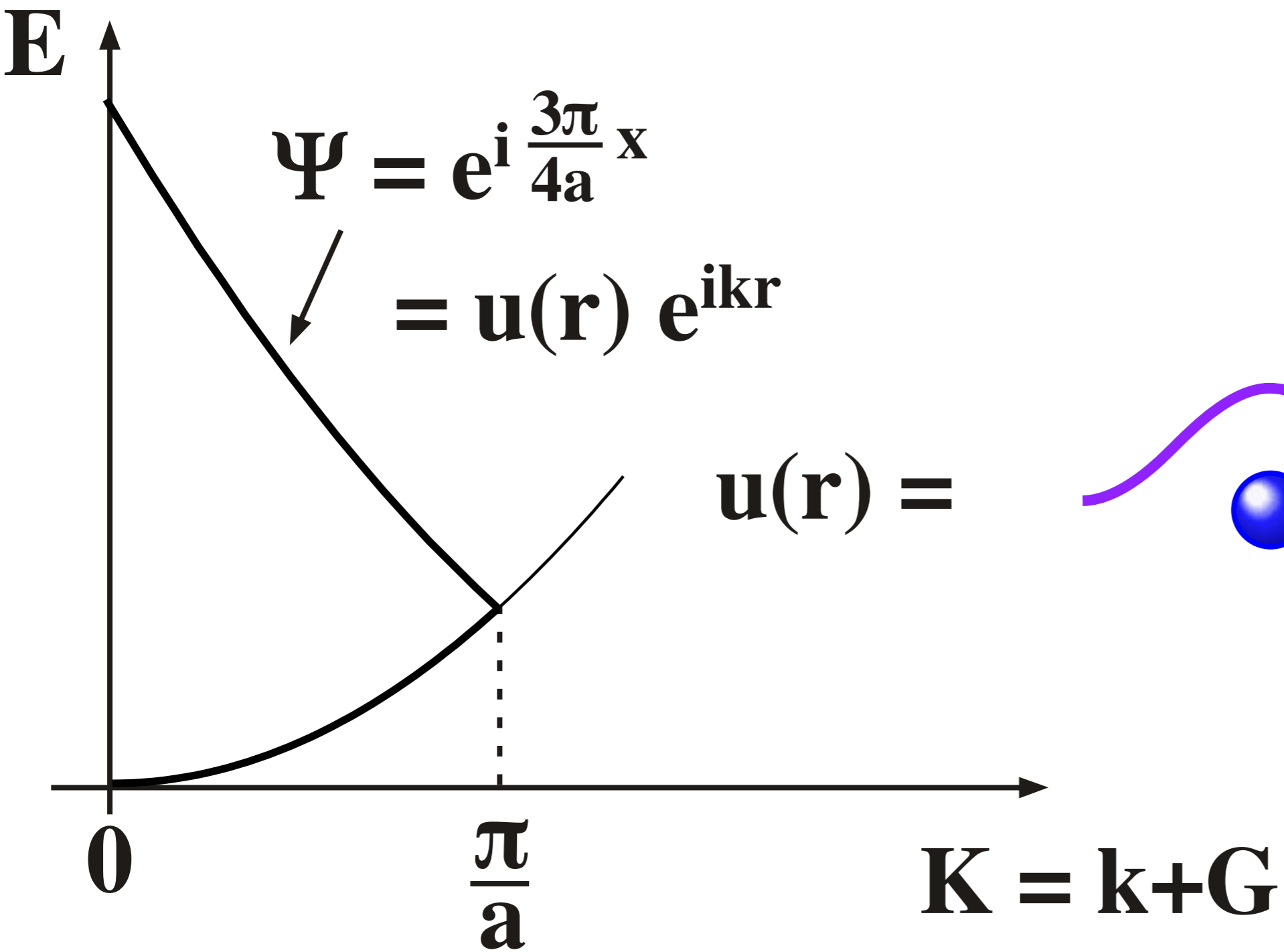
1. Brillouin Zone

1. Brillouin-Zone enthält gesamte Information



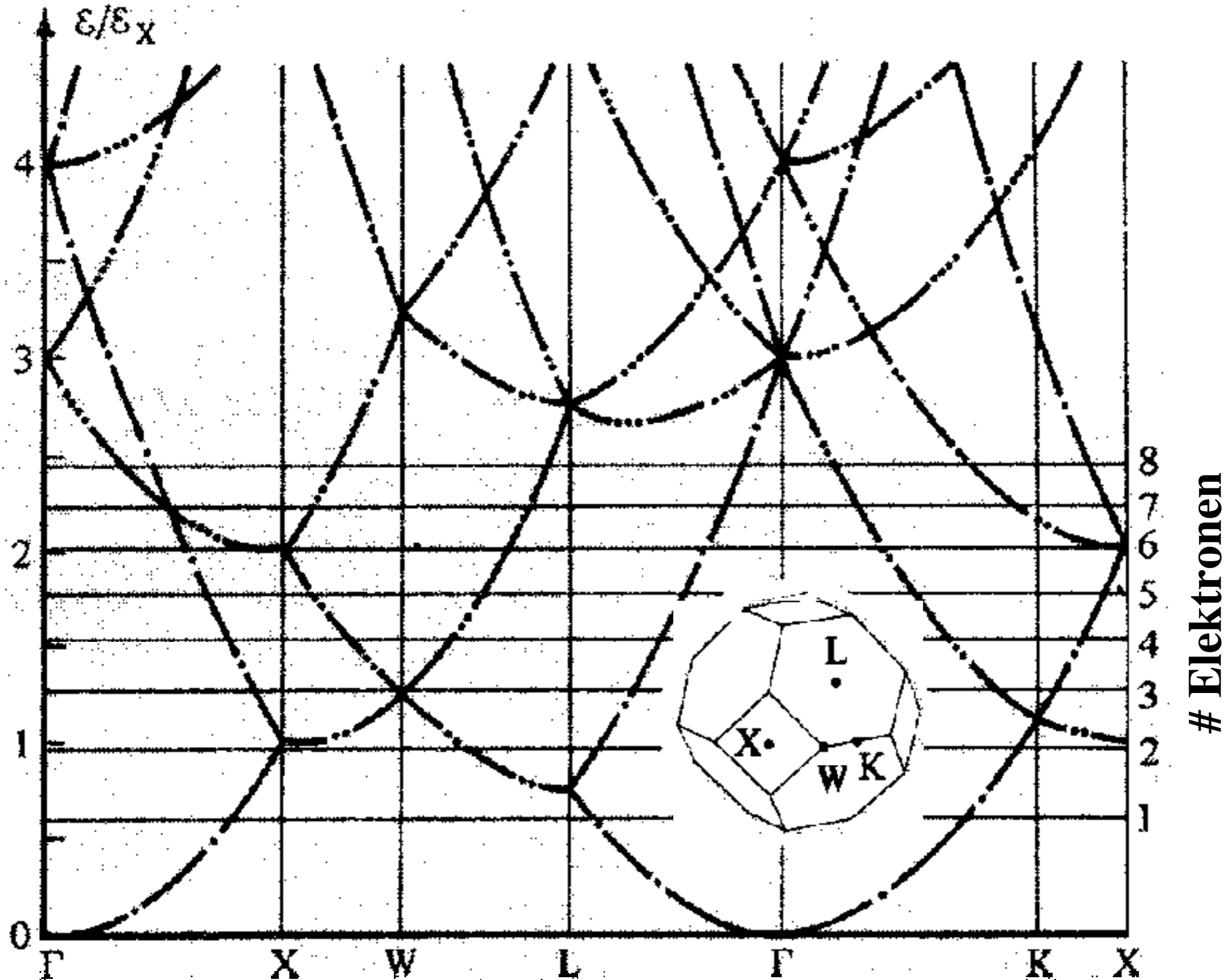
Gilt eigentlich nur für Kerne
Auch nützlich für Elektronen

Gefaltetes Band



für fcc Gitter

Bandstruktur in 3D



Eigenwertgleichung

$$\mathcal{H}\Psi = \mathcal{E}\Psi$$

freie Elektronen

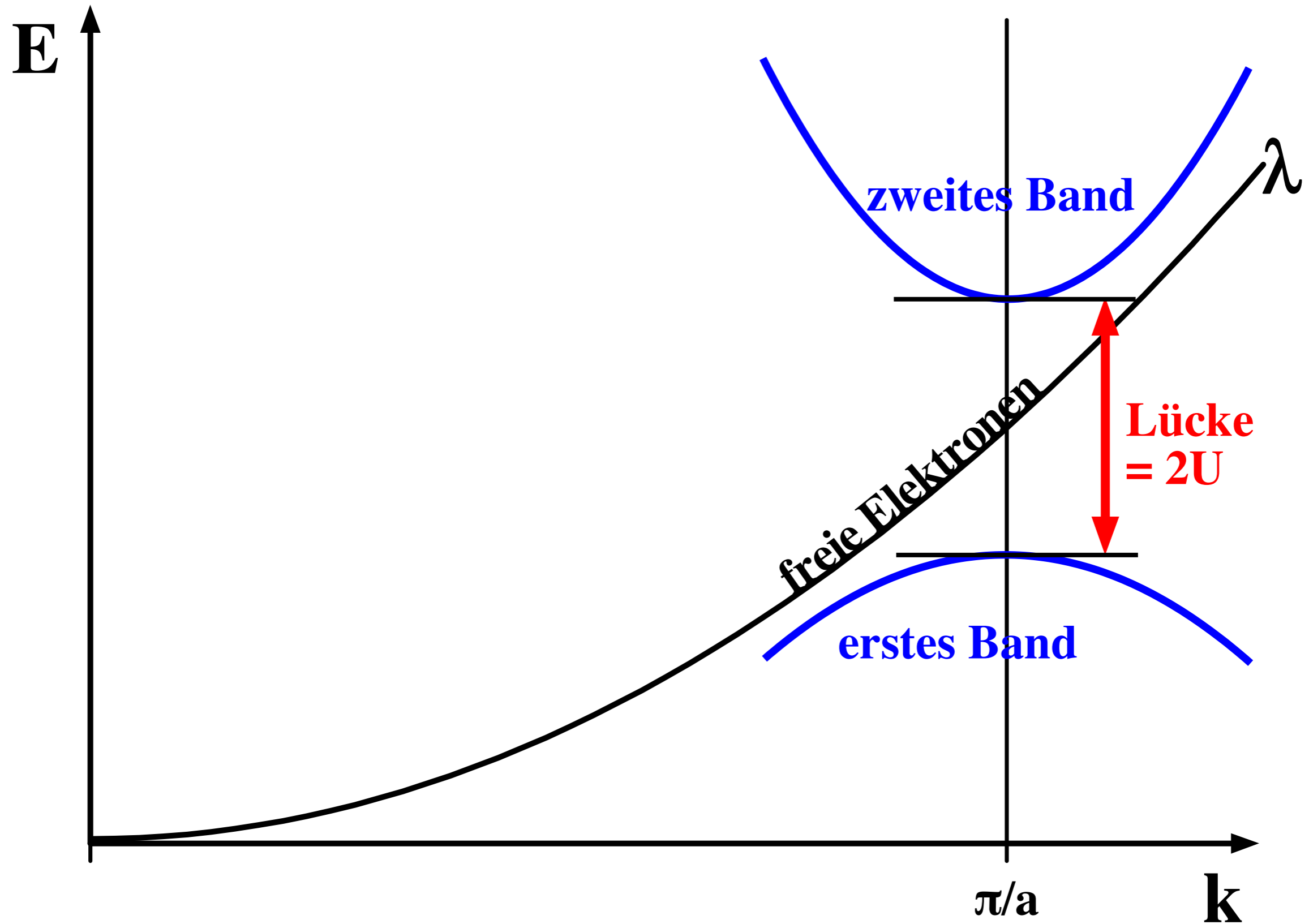
...

period. Potenzial

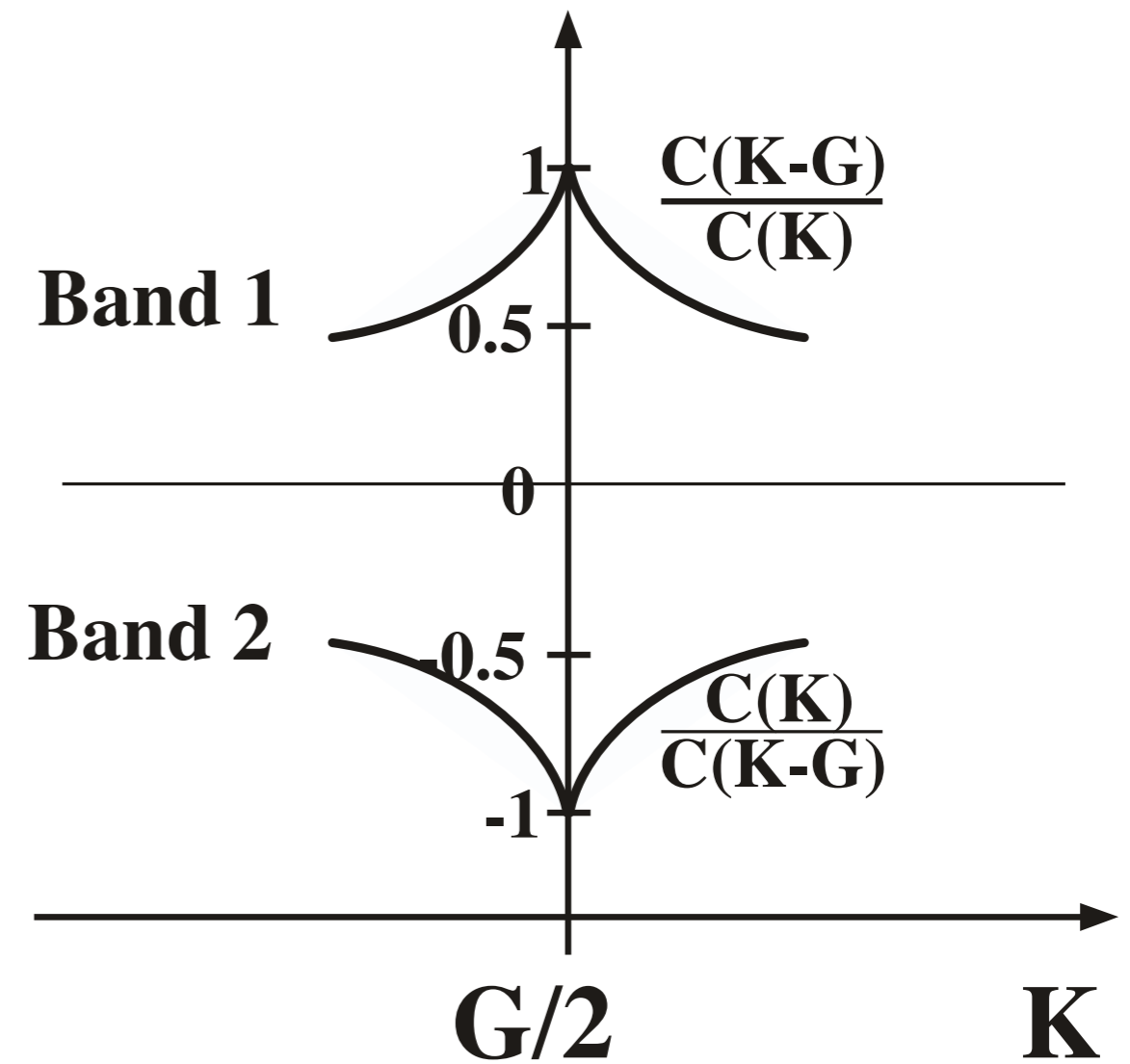
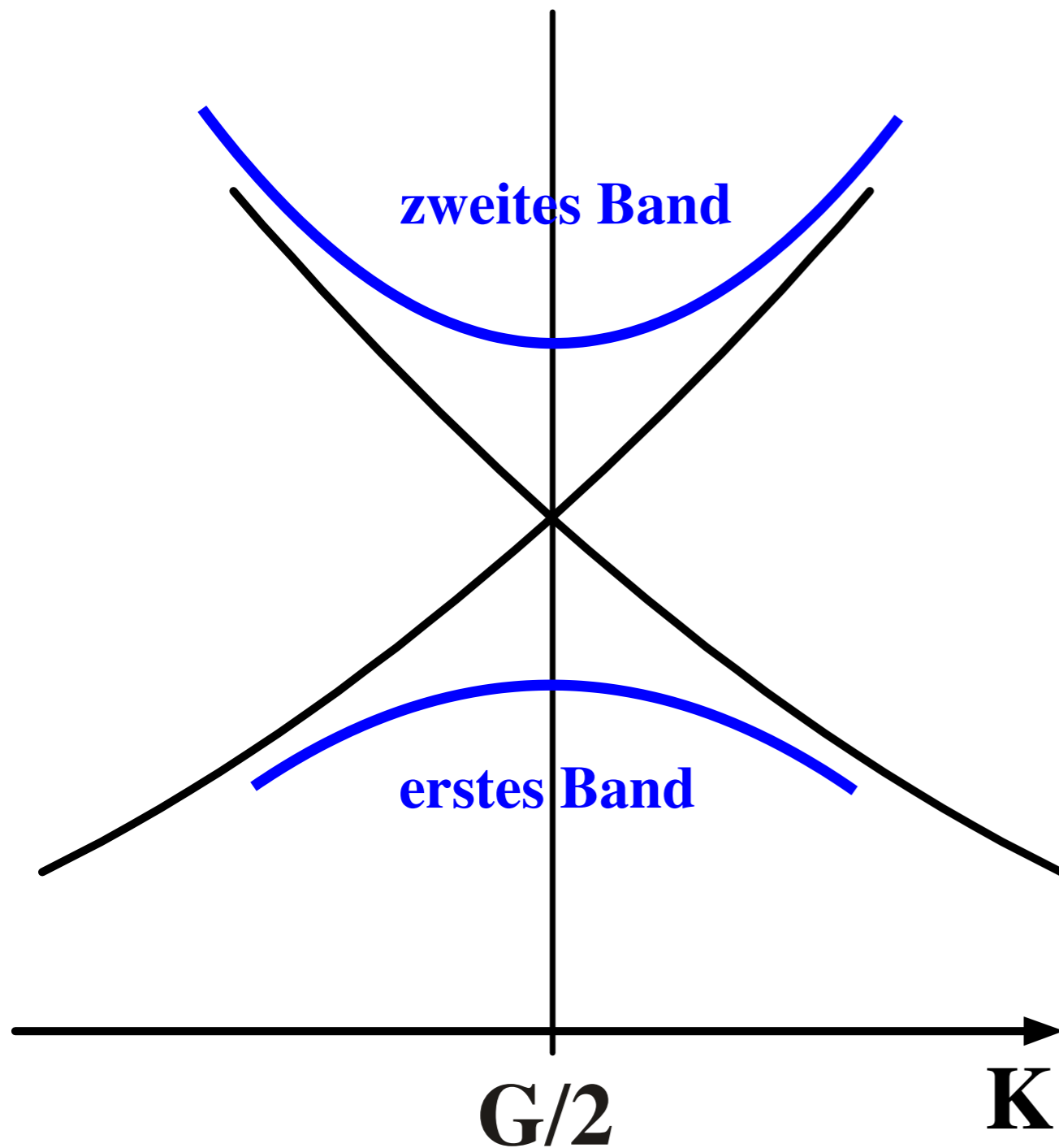
...

$$\lambda_{\mathbf{K}} = \frac{\hbar^2}{2m} \mathbf{K}^2$$

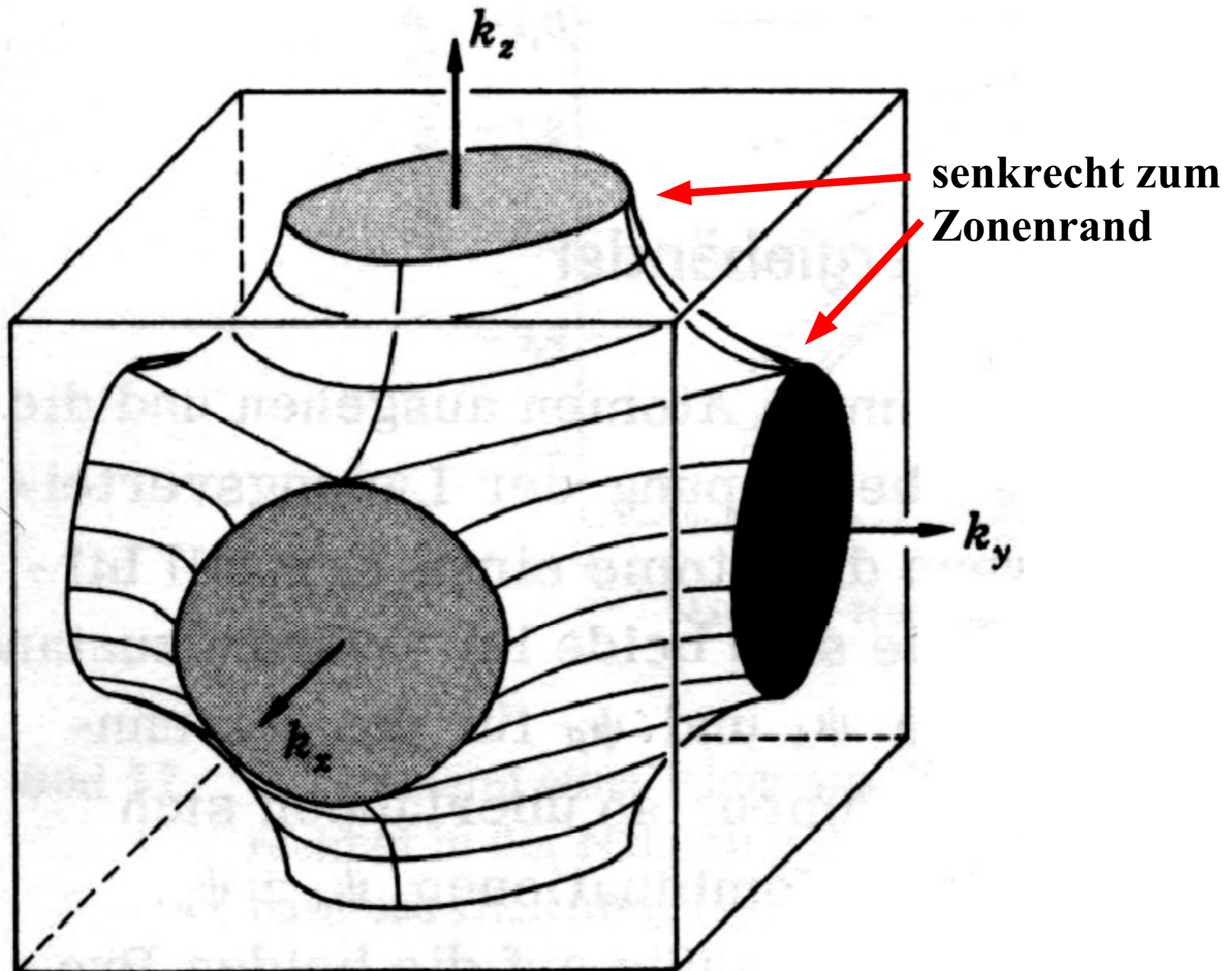
Bandaufspaltung



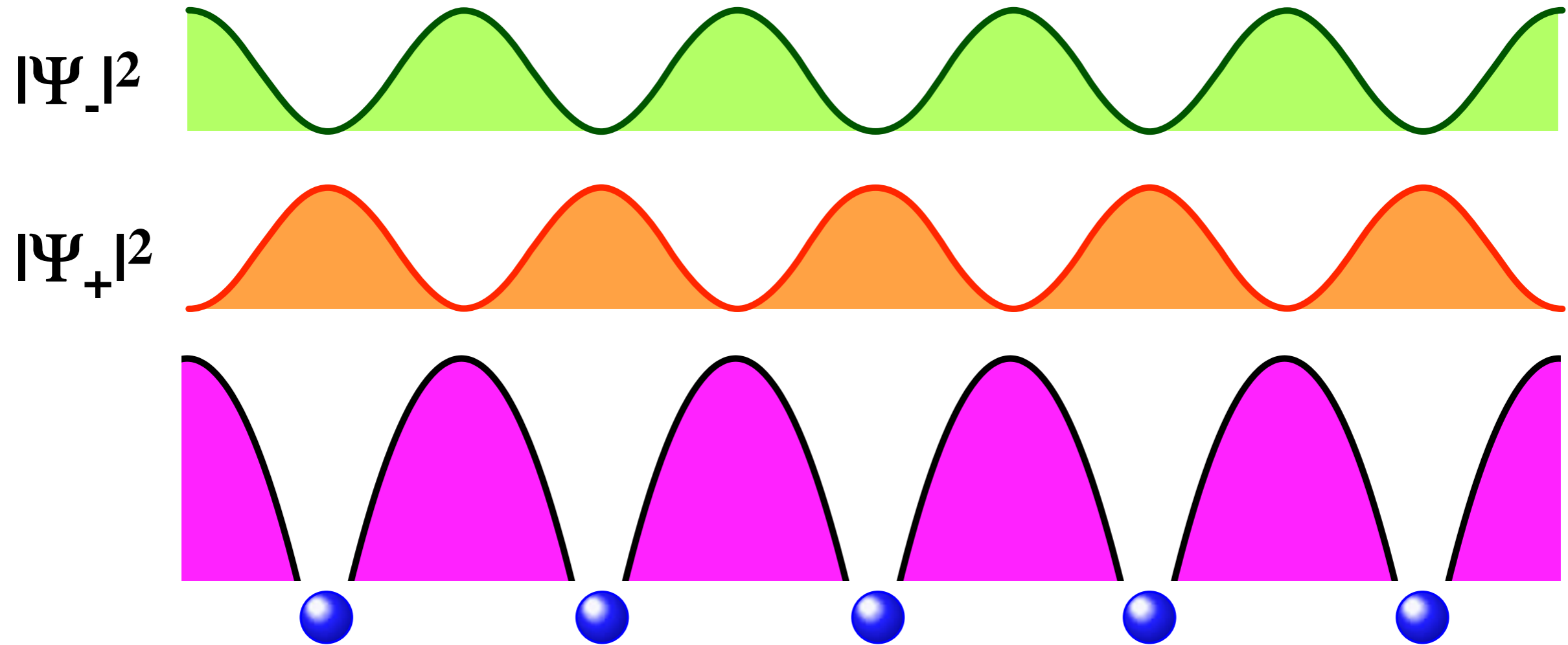
Zustände am Zonenrand



Fermifläche in 3D

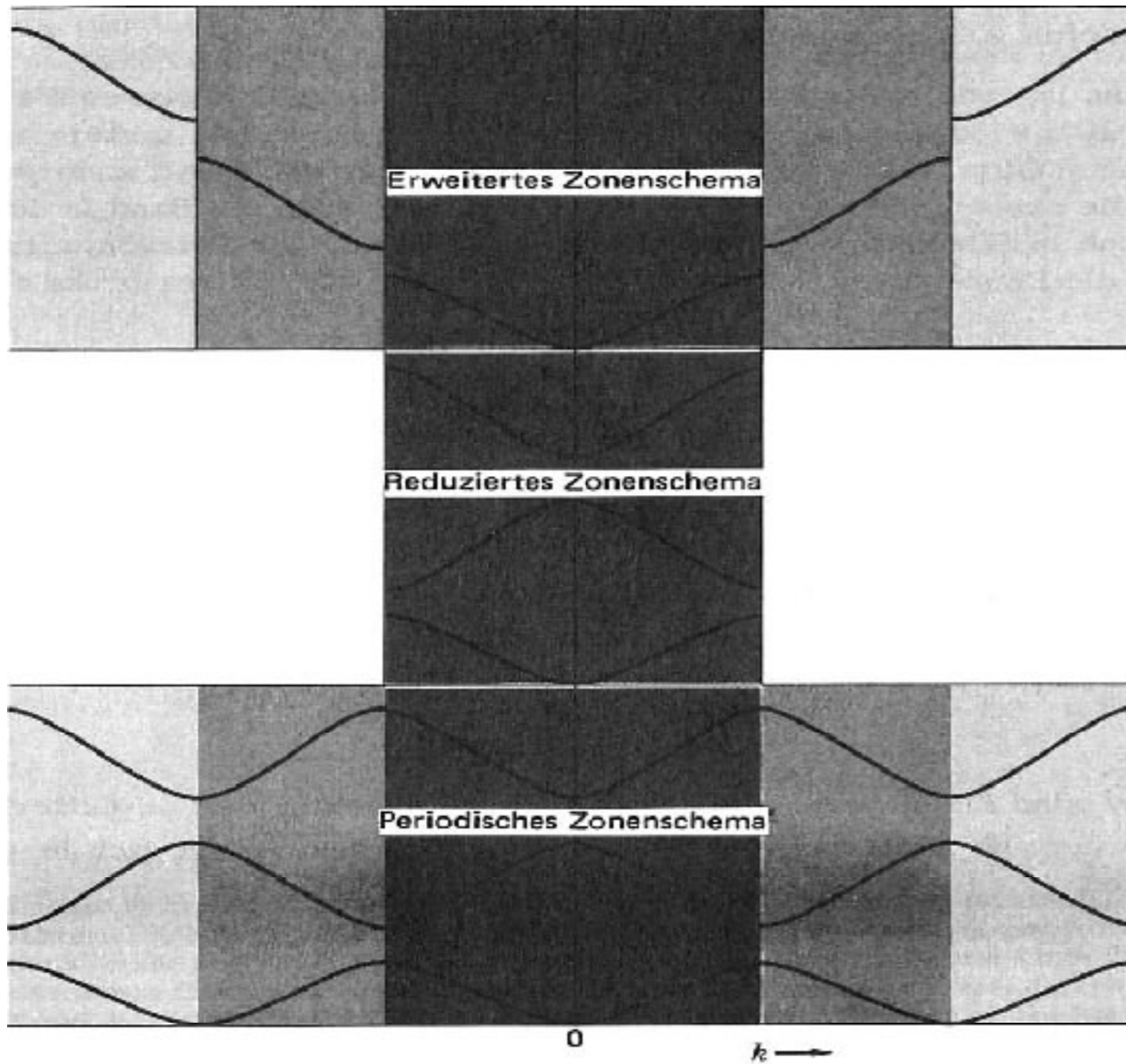


Zustände

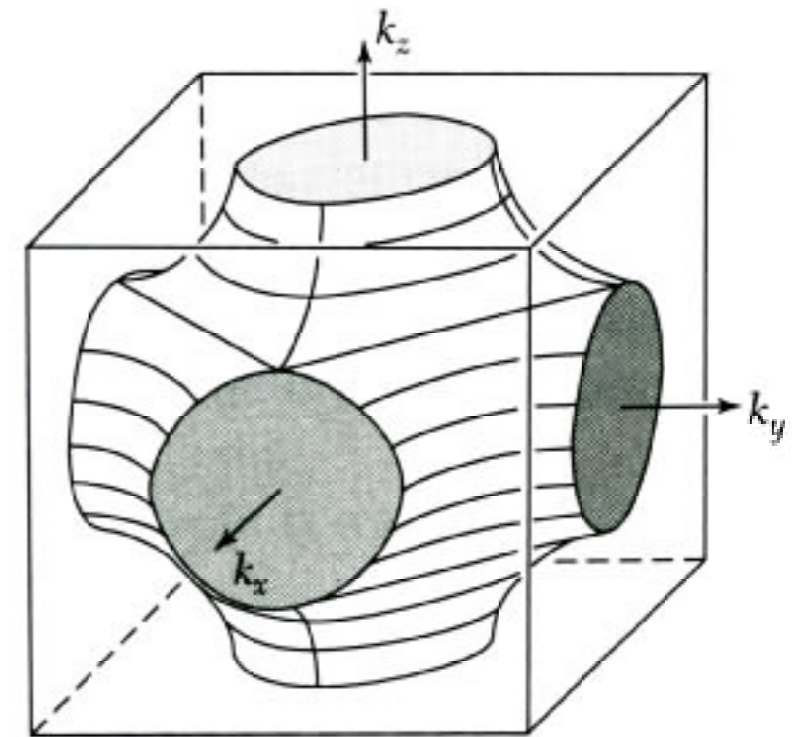


Zonenschema

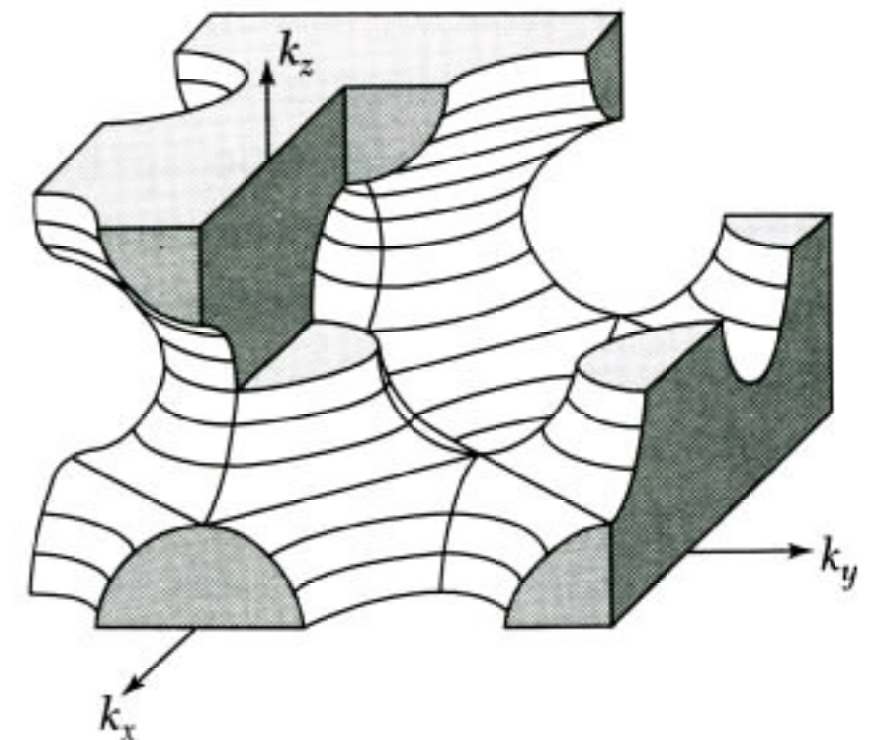
Fermi-Oberfläche im sc Gitter



$$\mathbf{E}(\vec{k} + \vec{G}) = \mathbf{E}(\vec{k})$$

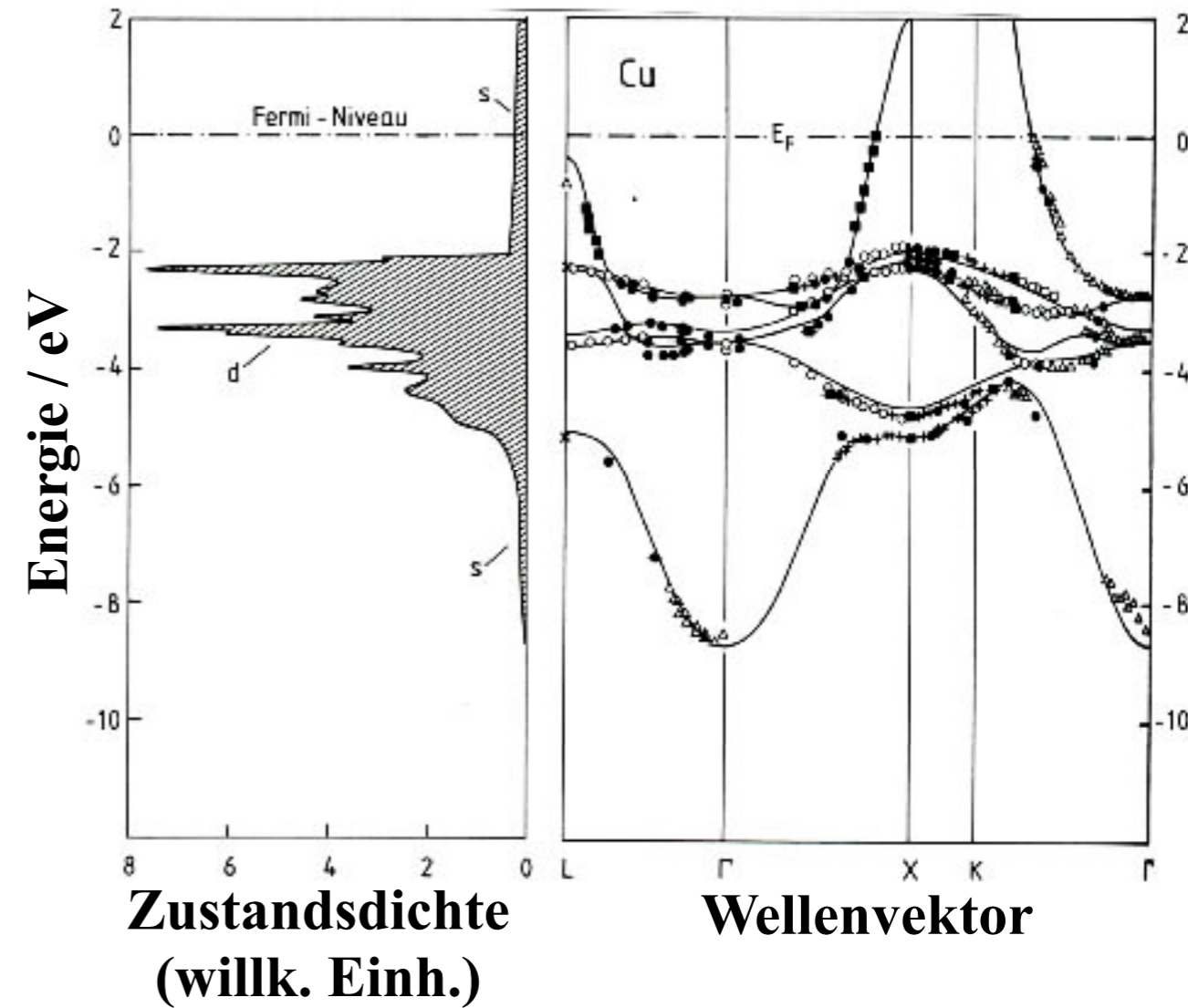
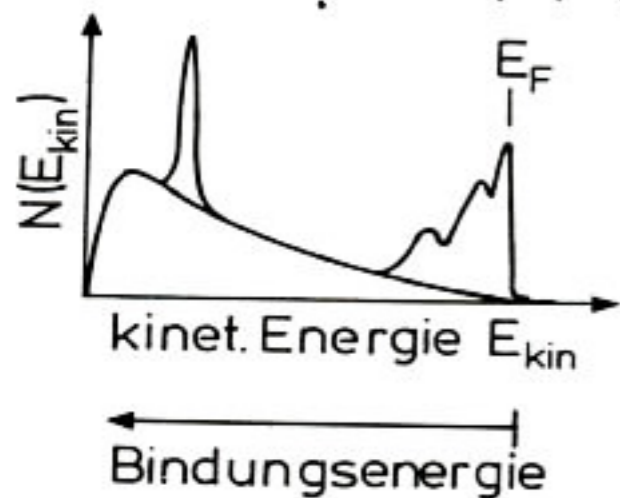
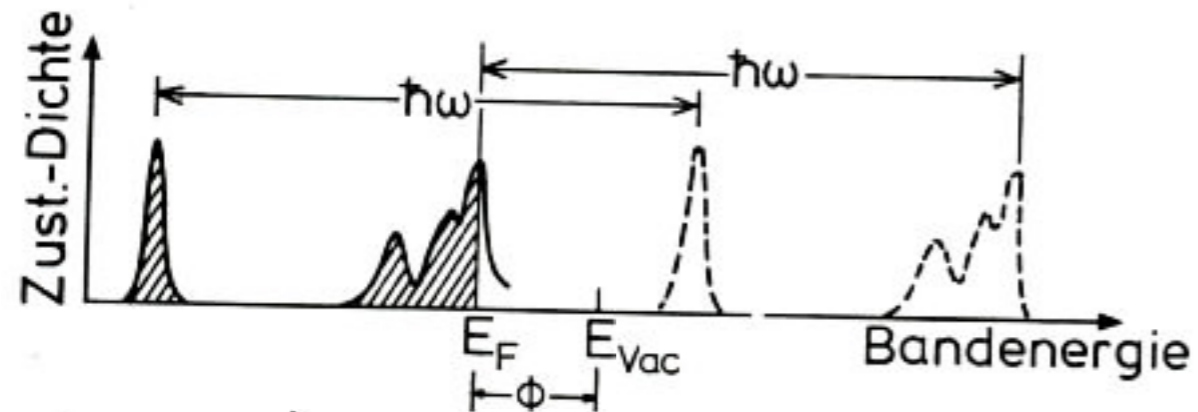
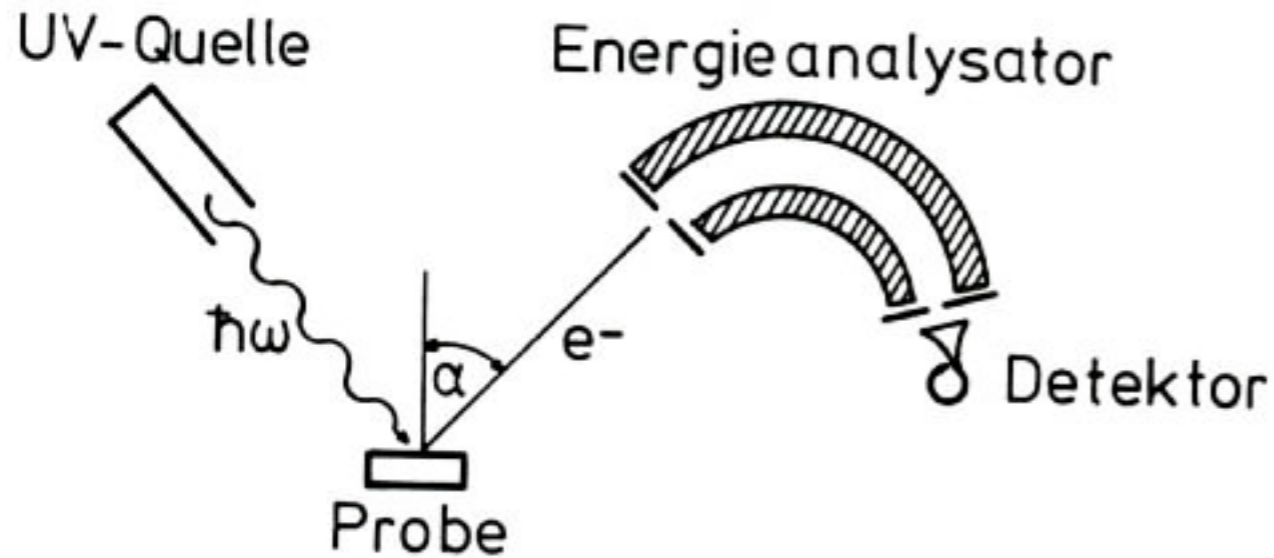


Fermi-Oberfläche im periodischen Zonenschema

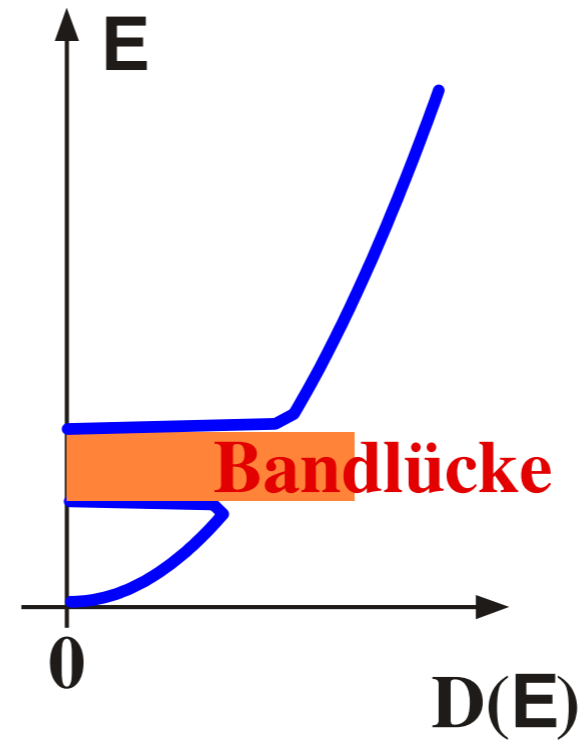
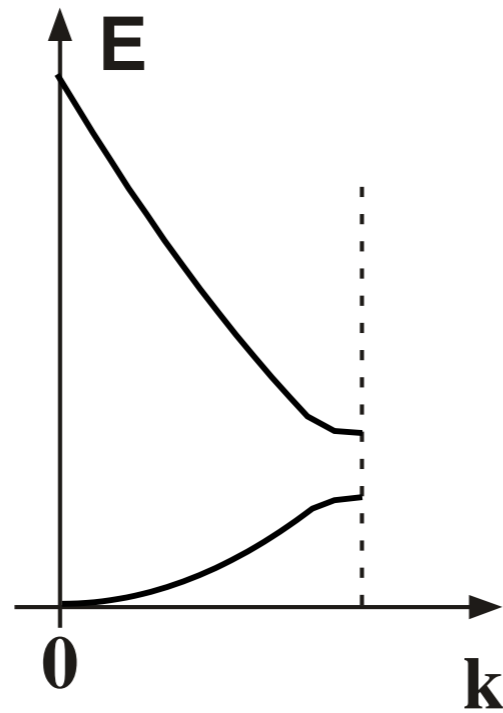
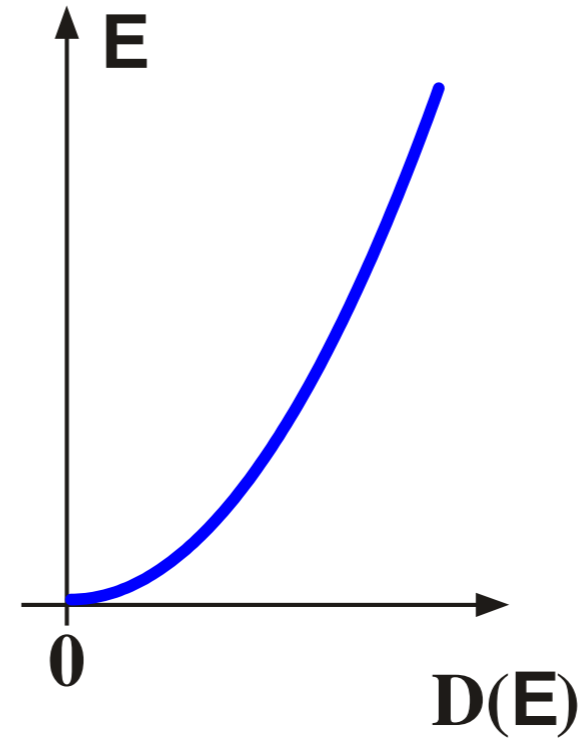
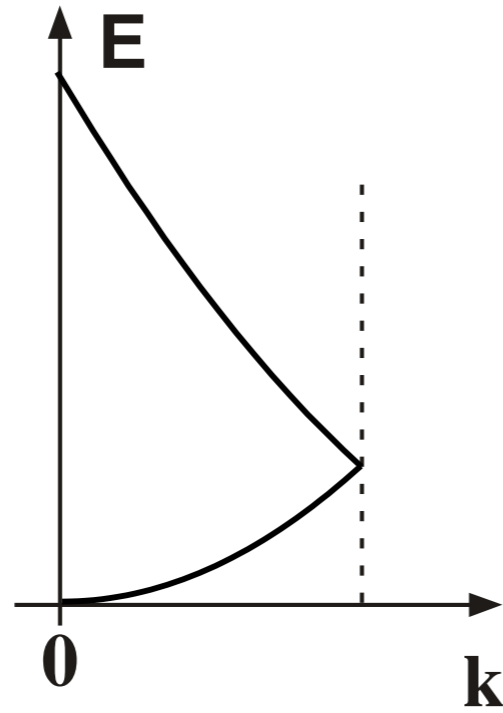


Photoemissionsspektroskopie

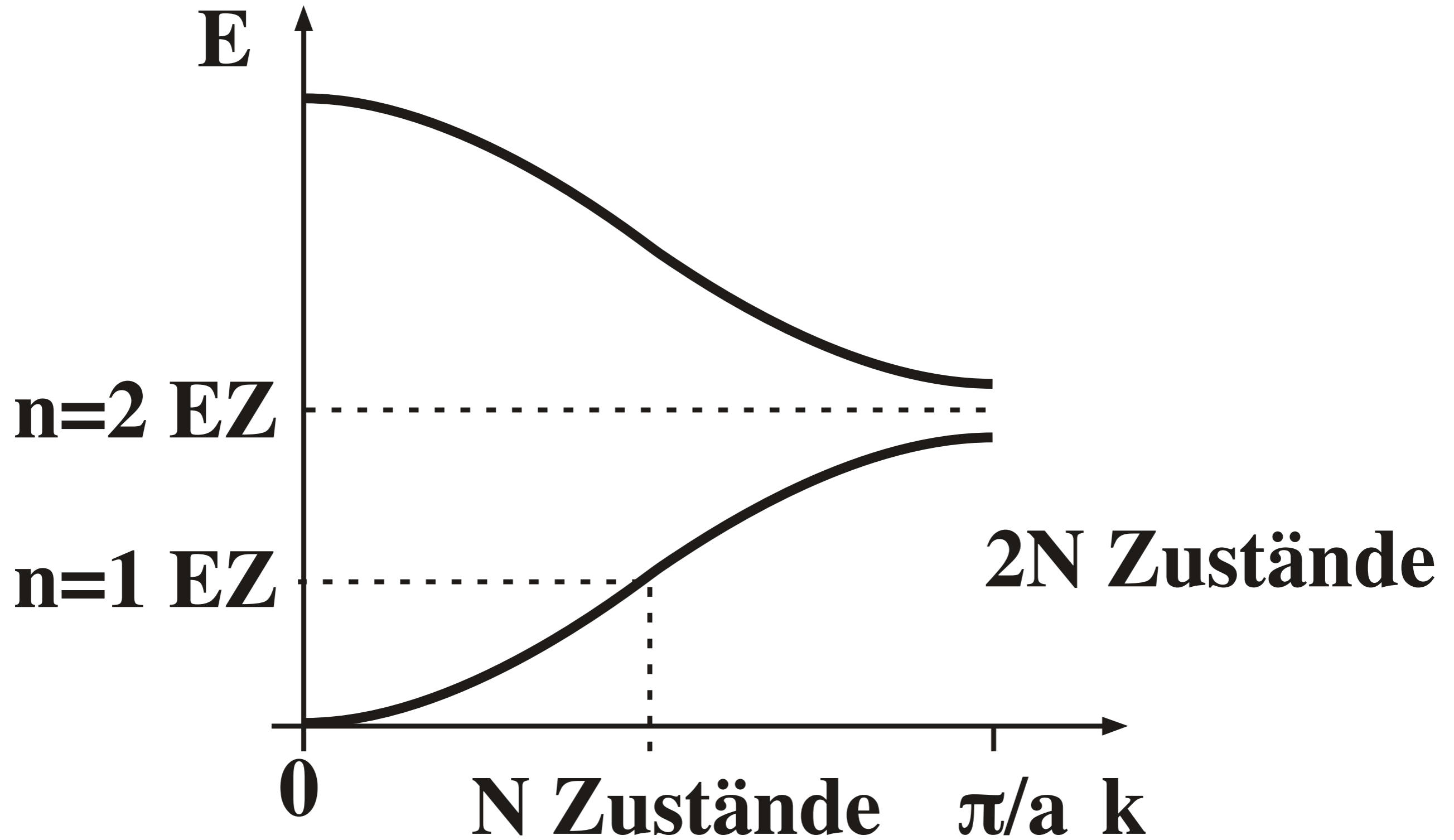
Messprinzip:



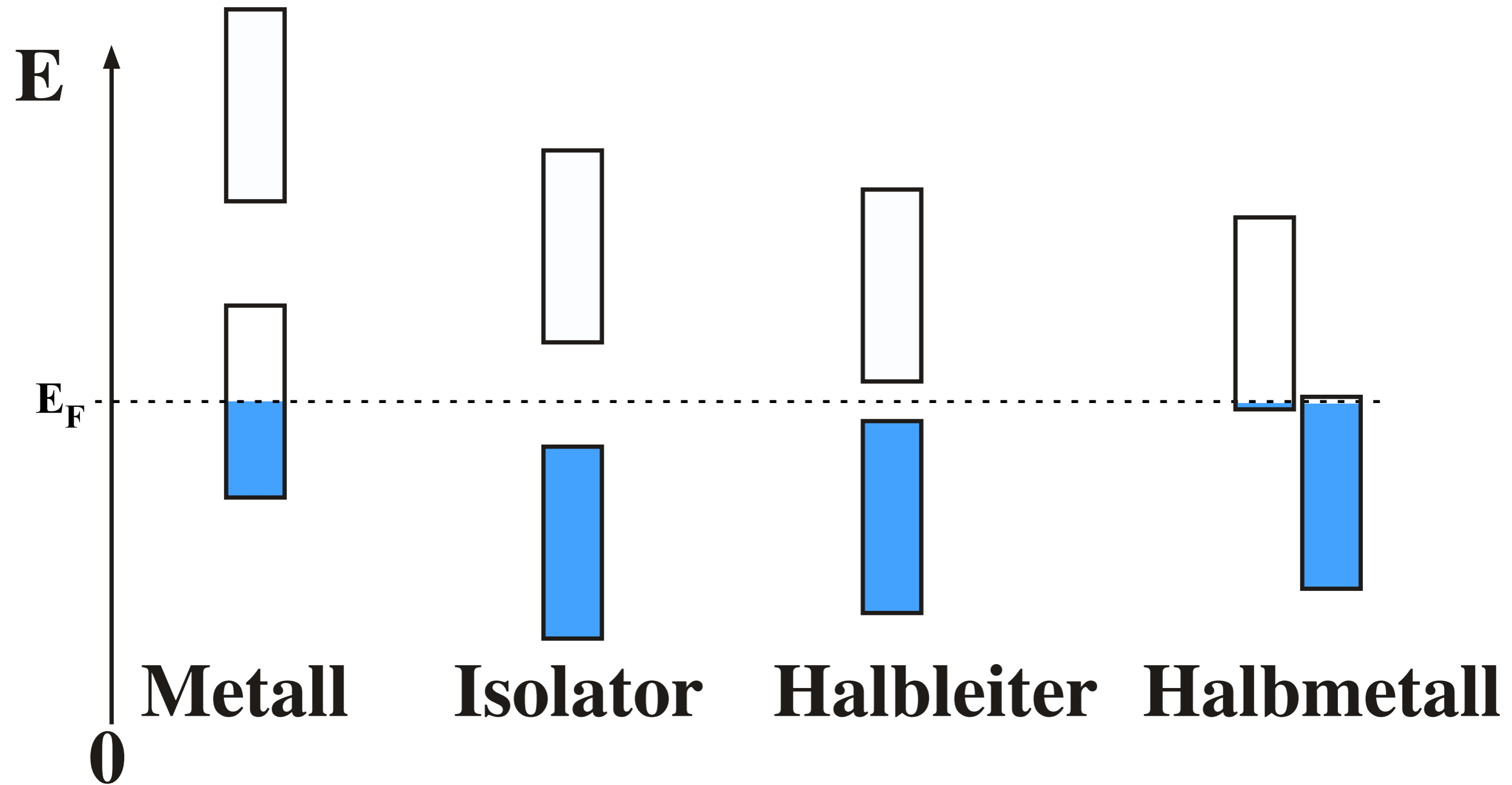
Bandlücke



Zustände pro Band



Metalle - Isolatoren



Überlappende Bänder

Zustandsdichte überlappender Bänder

