8. Bandstruktur und Fermi Flächen

Karlsruhe Institute of Technology

8.1 Quasi freie Elektronen

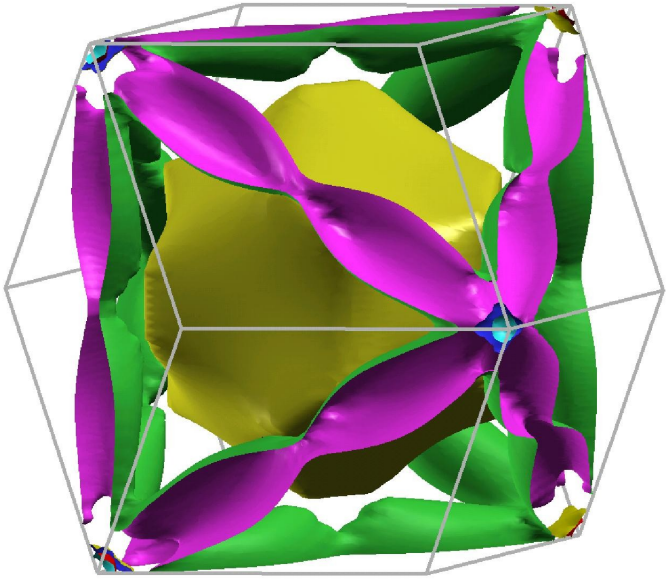
8.2 Bloch Zustände

8.3 Elektronen in einem periodischen Potential

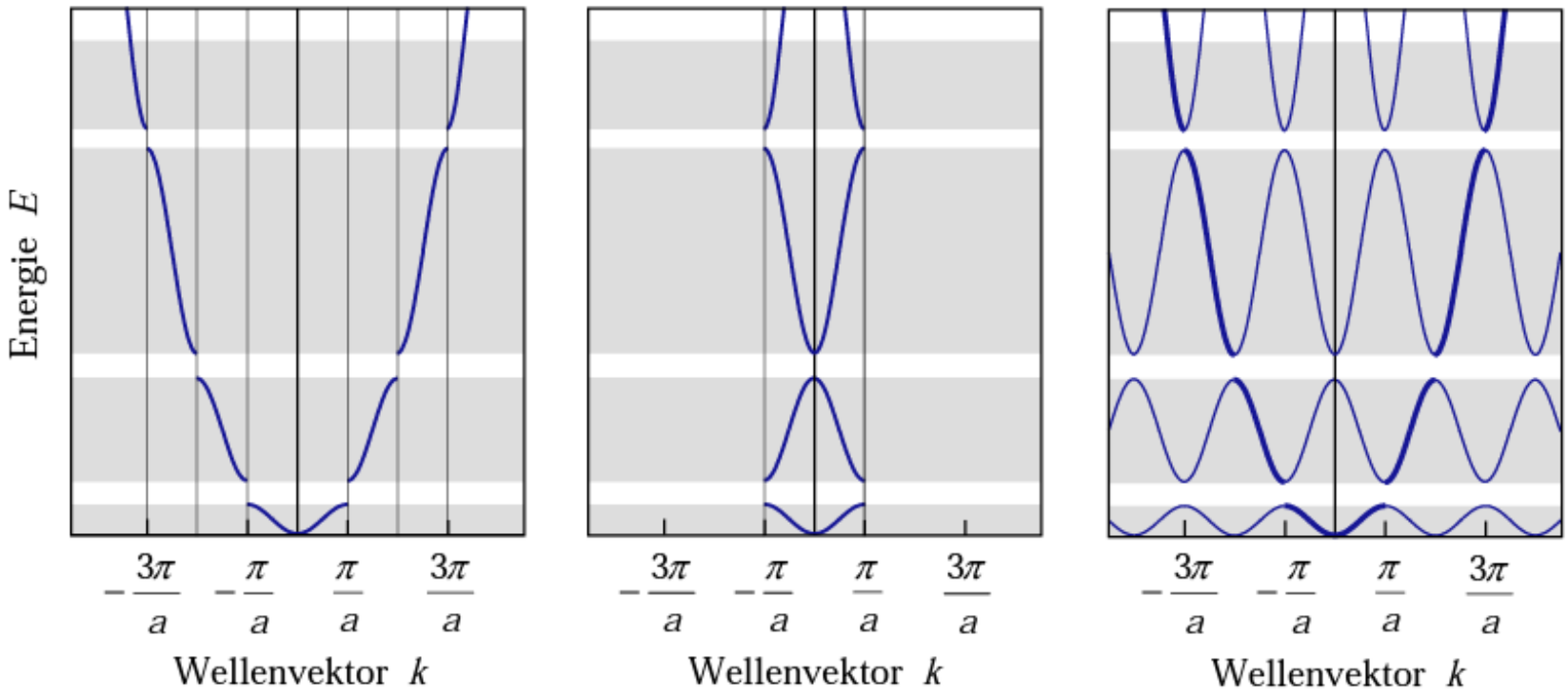
8.4 Die Bandstruktur und die Fermi Fläche

8.5 Transporteigenschaften

8.6 Elektronen im Magnetfeld &
der De Haas-van Alphen Effekt



8.3 Elektronen in einem periodischen Potential



erweitertes Zonenschema

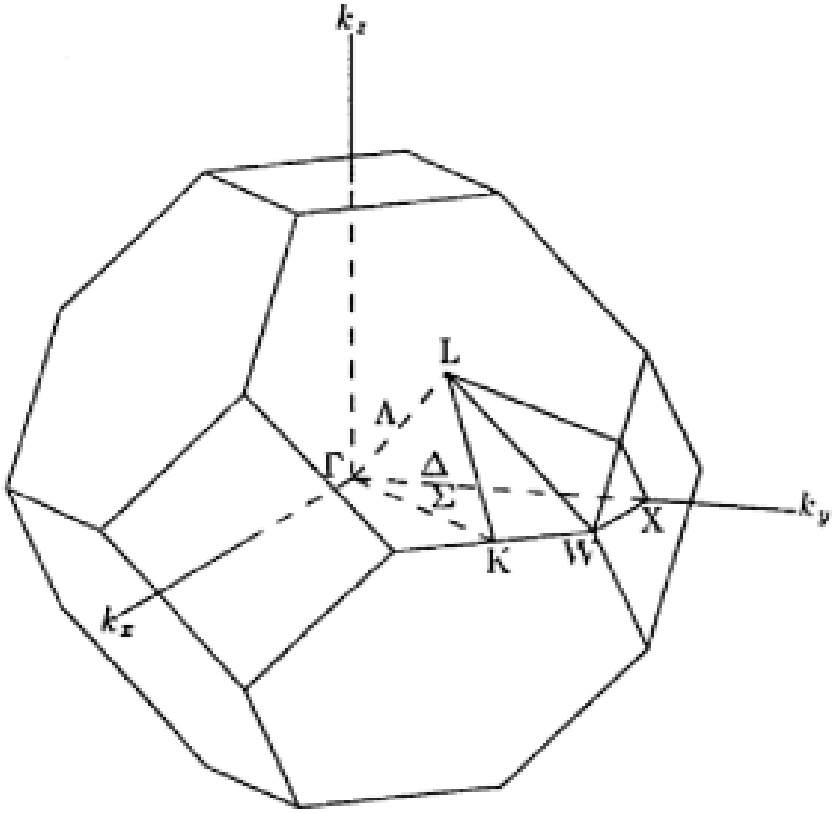
reduziertes Zonenschema

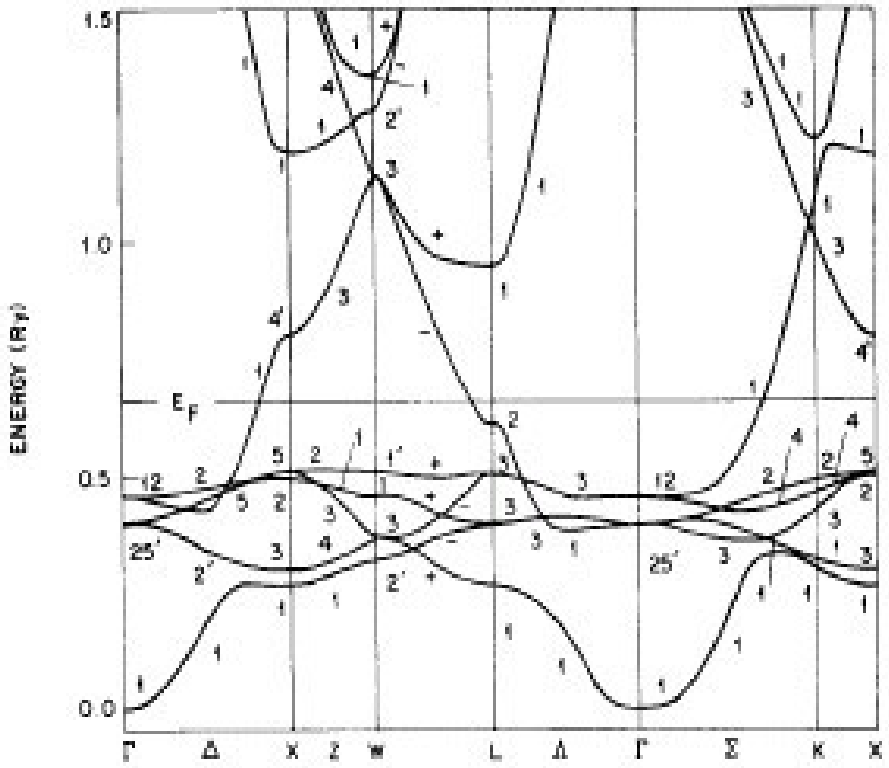
periodisches Zonenschema

8.4 Die Bandstruktur und die Fermi-Fläche

Die elektronische Struktur von fcc Cu

Brillouin Zone

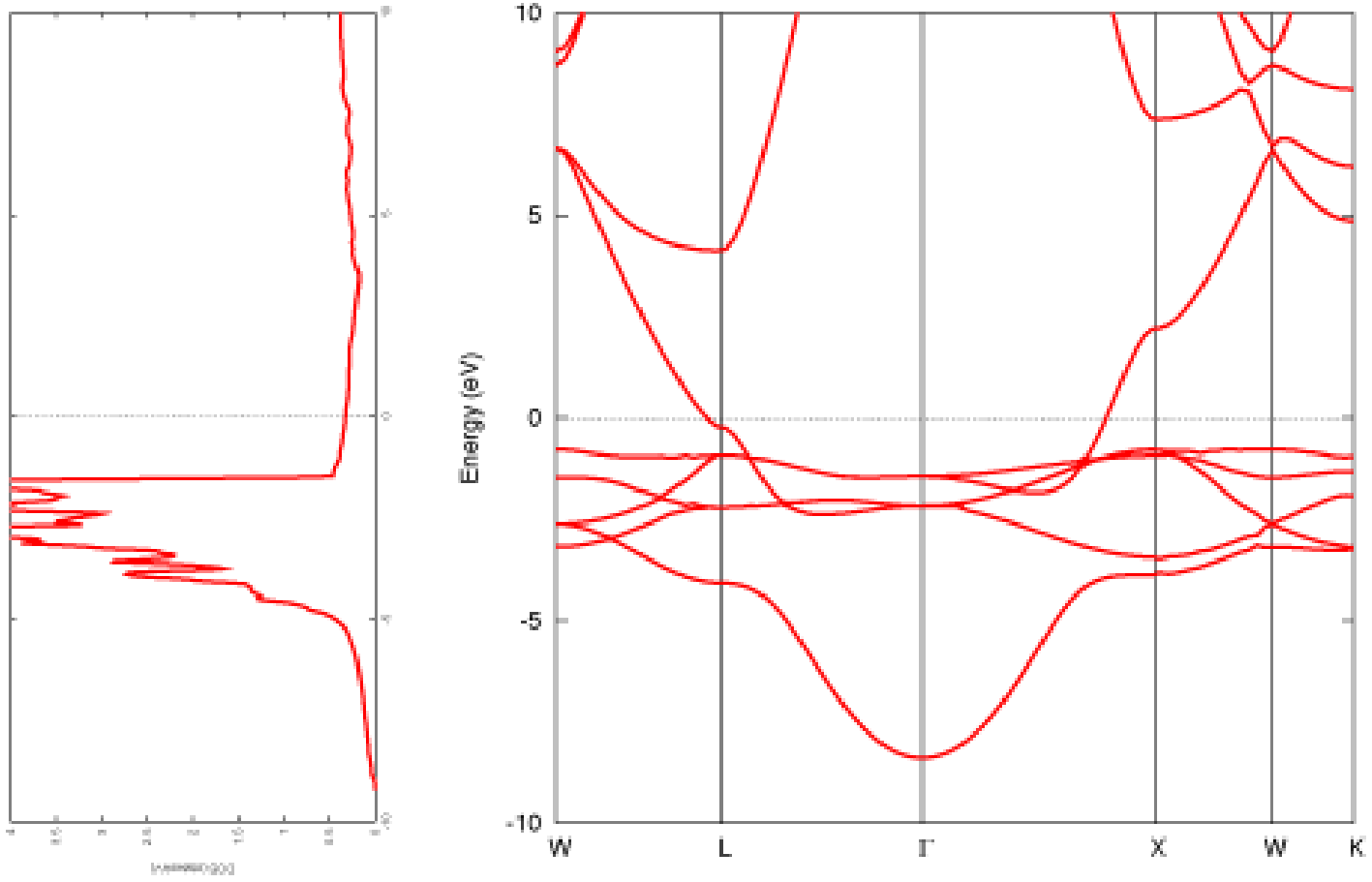




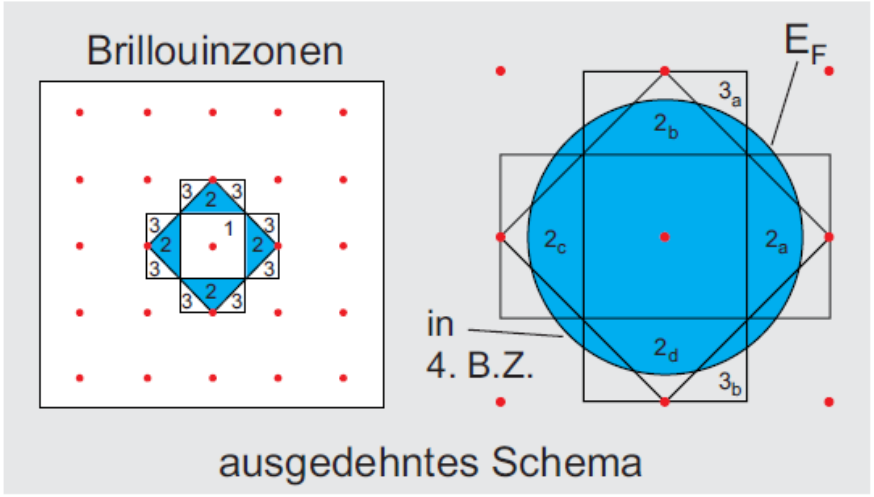
8.4 Die Bandstruktur und die Fermi-Fläche

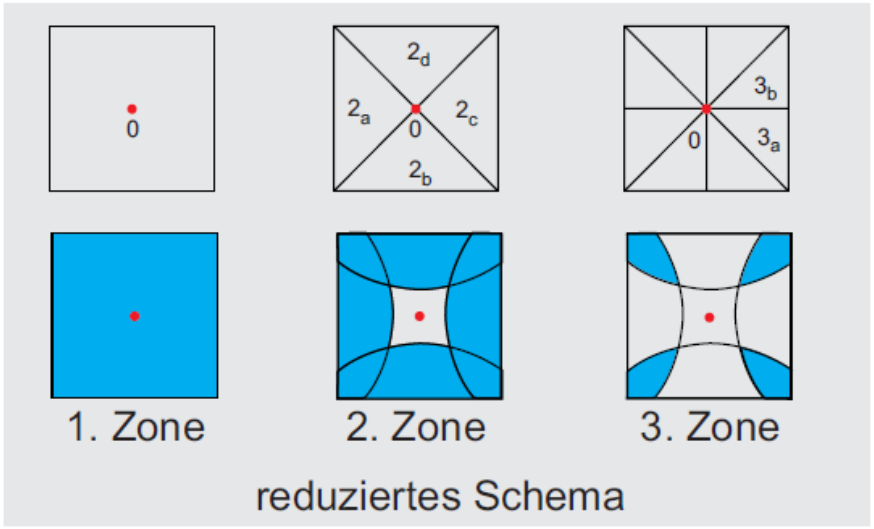
Karlsruhe Institute of Technology

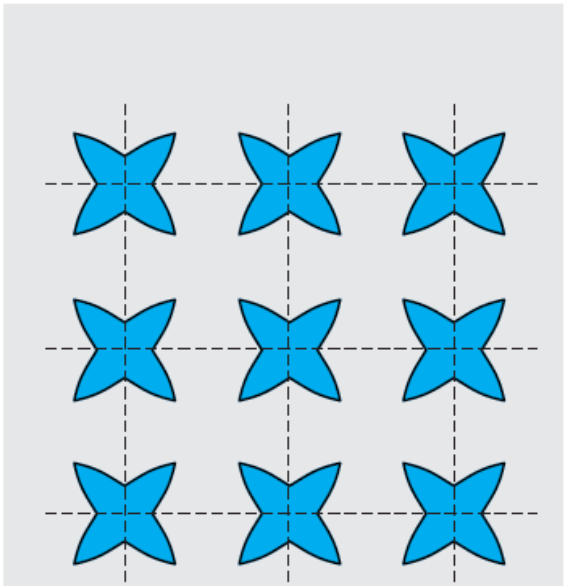
Die elektronische Struktur von fcc Cu



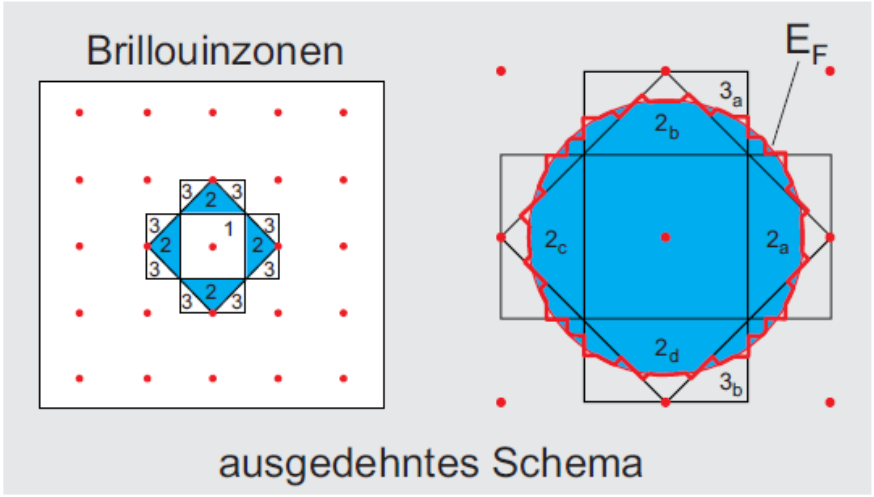
8.4 Die Bandstruktur und die Fermi-Fläche

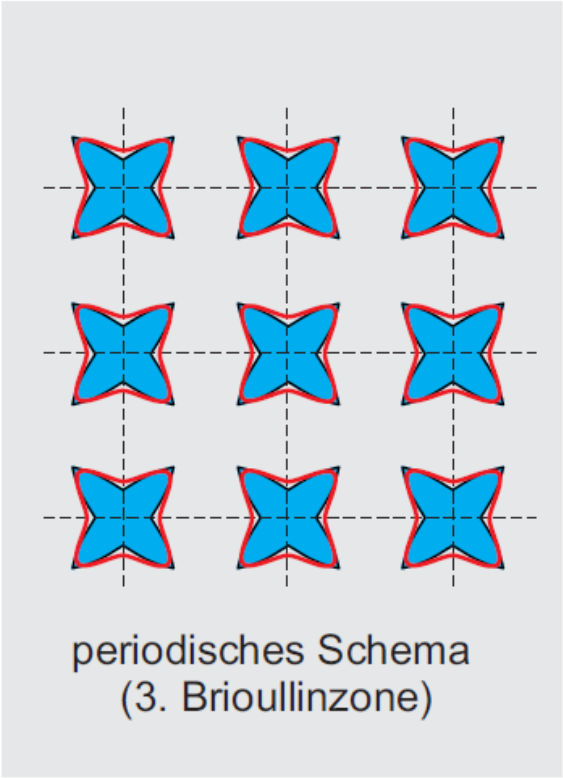




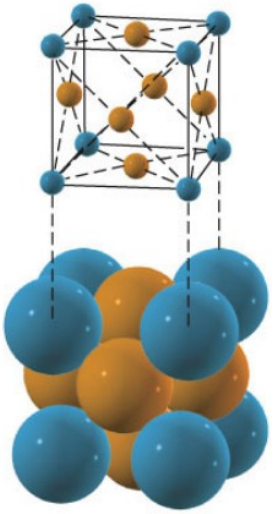


8.4 Die Bandstruktur und die Fermi-Fläche

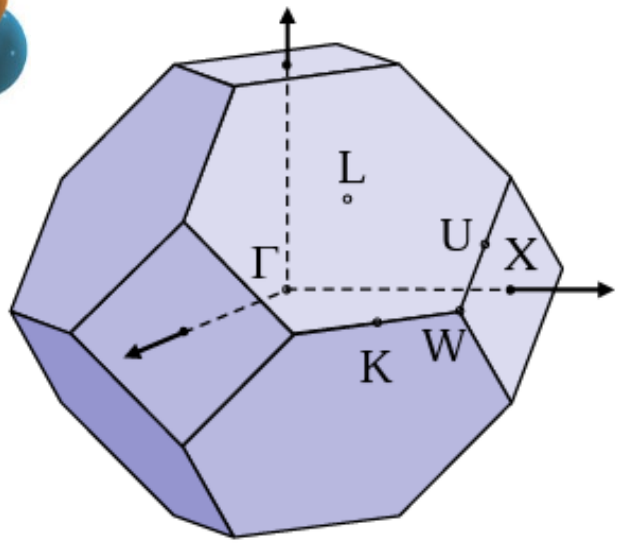




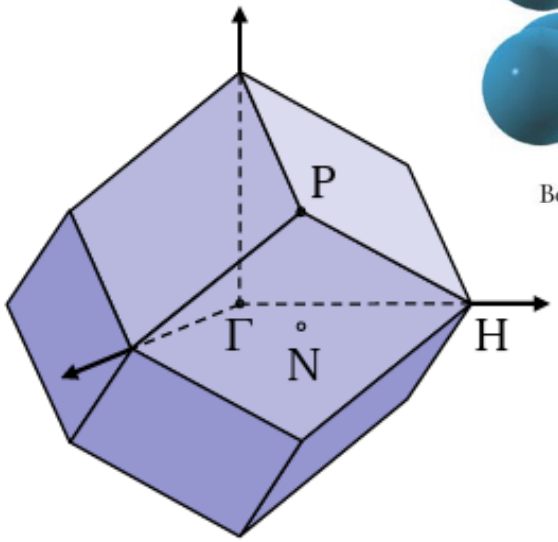
8.4 Die Bandstruktur und die Fermi-Fläche



Face-centered



fcc



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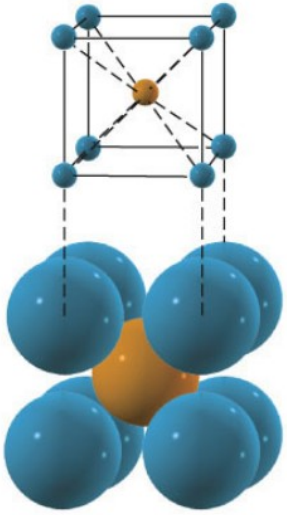
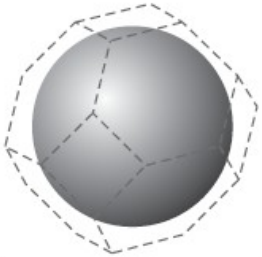
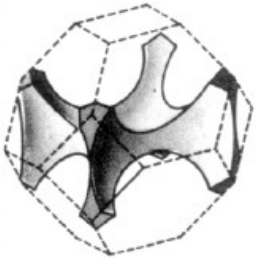
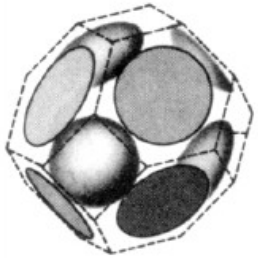
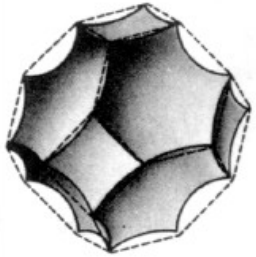
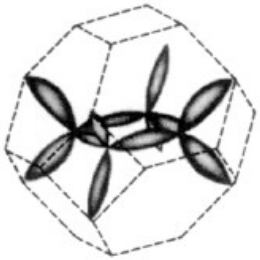
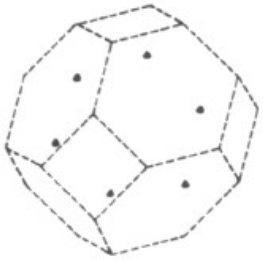


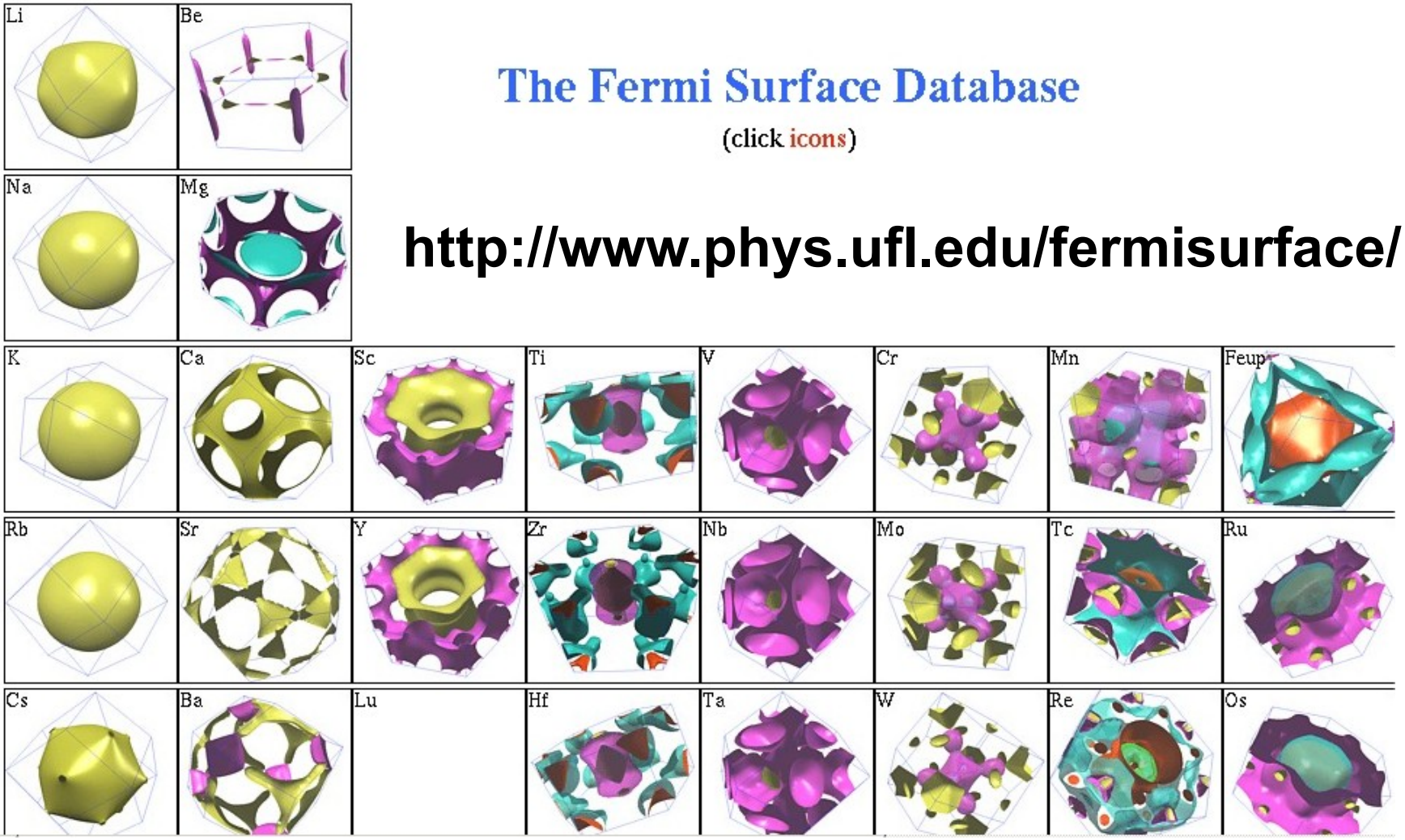
Body-centered

8.4 Die Bandstruktur und die Fermi-Fläche

Anteile in verschiedenen Brillouin-Zonen

	erste Zone	zweite Zone	dritte Zone	vierte Zone
einwertig		—	—	—
zweiwertig			—	—
dreiwertig	—			

8.4 Die Bandstruktur und die Fermi-Fläche

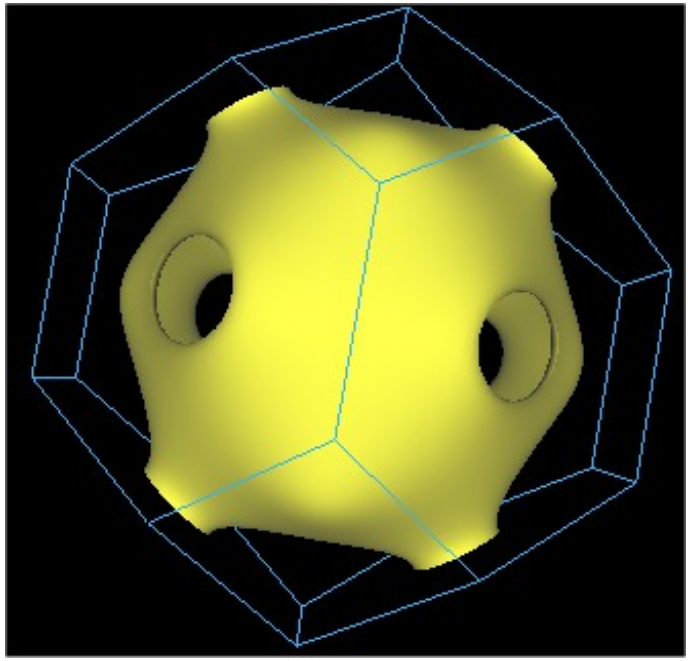


The Fermi Surface Database

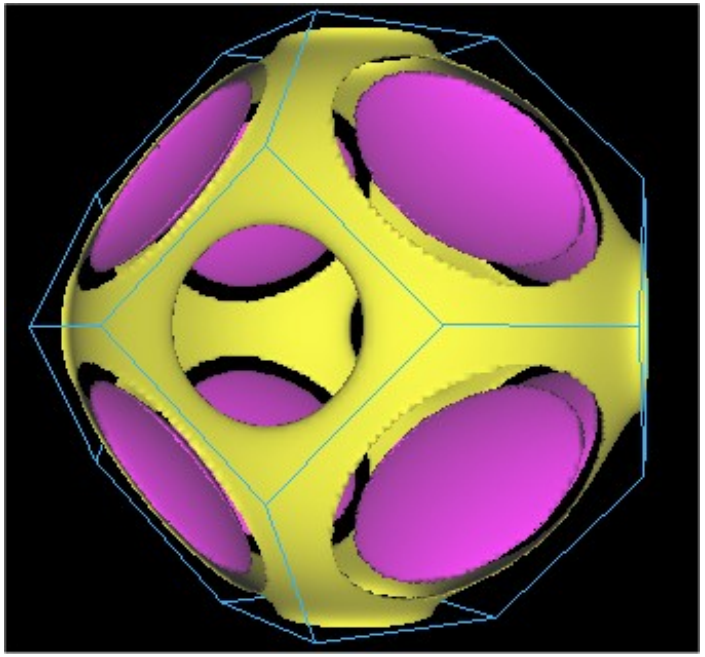
(click icons)

http://www.phys.ufl.edu/fermisurface/

8.4 Die Bandstruktur und die Fermi-Fläche



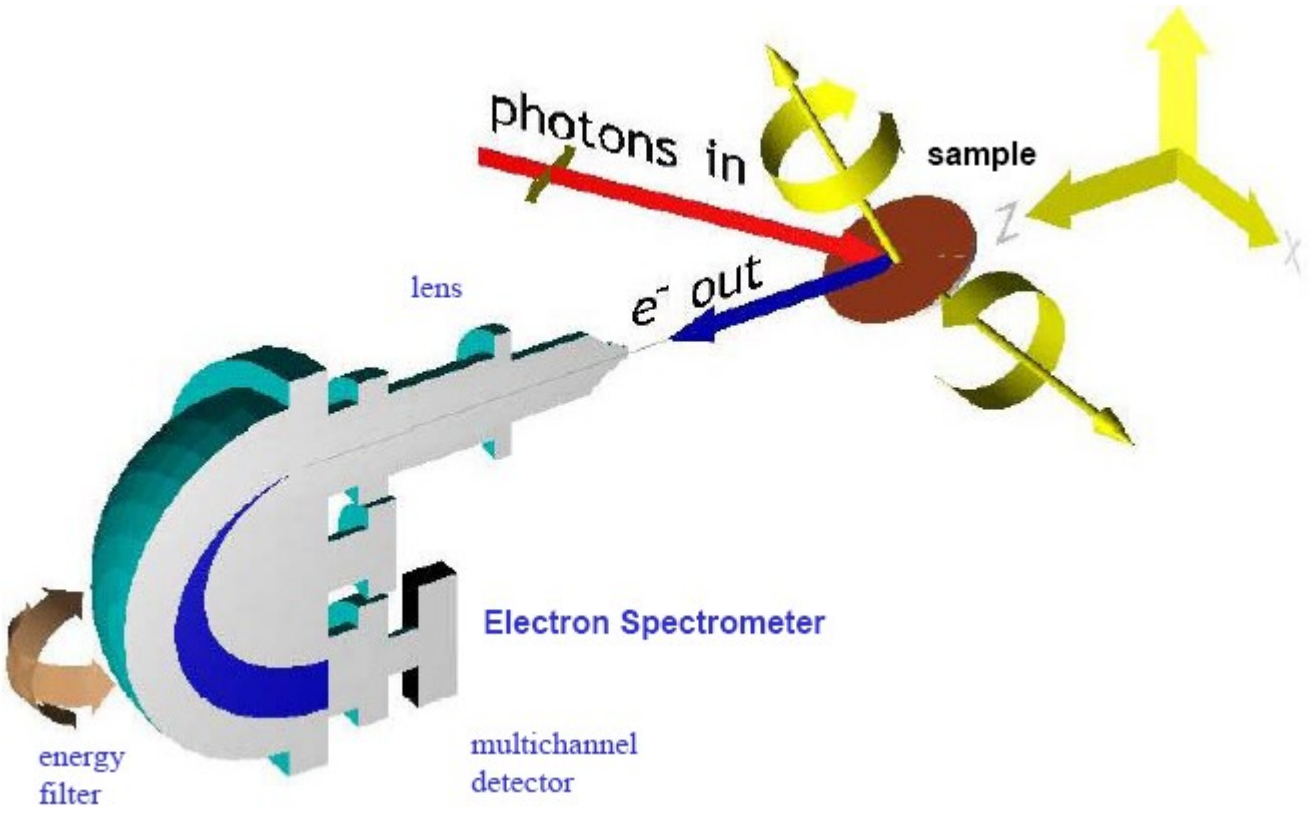
Cu



Zn

8.4 Die Bandstruktur und die Fermi-Fläche

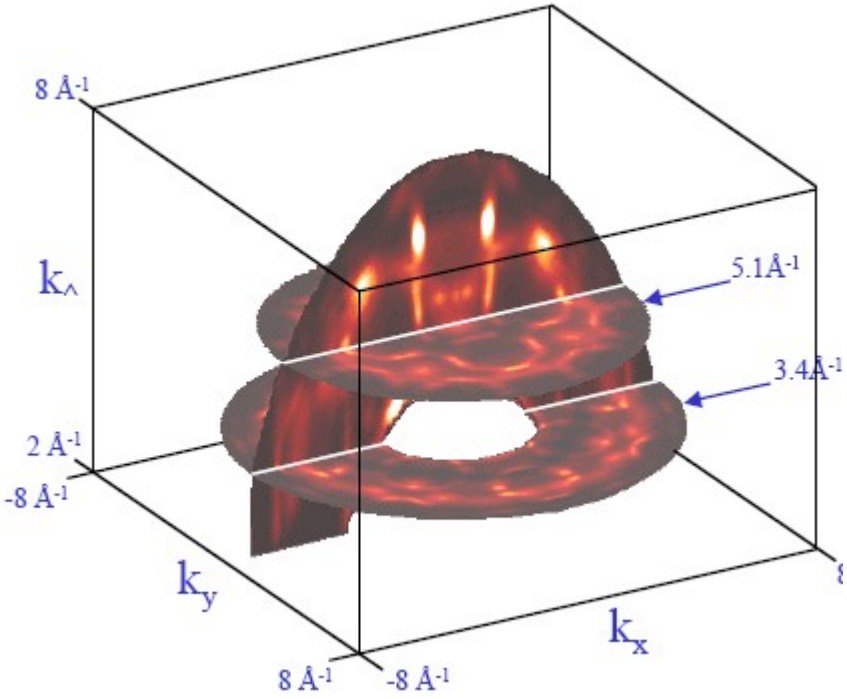
Winkelaufgelöste Photoemission



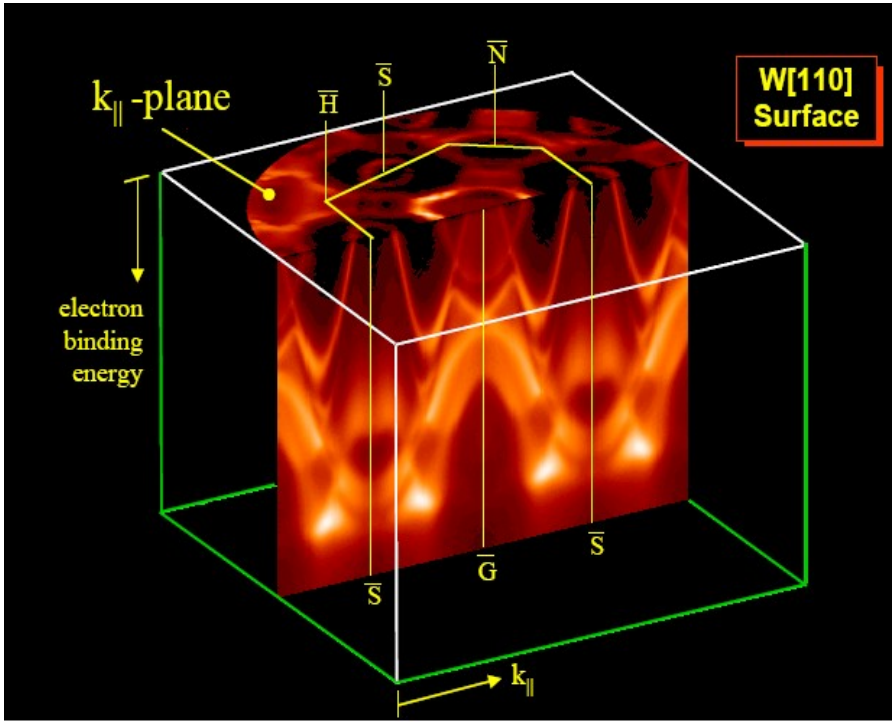
- Ausfallsrichtung der Elektronen wird über Detektorposition bestimmt.
- Energie der Elektronen wird mittels Elektronenspektrometer bestimmt.

8.4 Die Bandstruktur und die Fermi-Fläche

Fermifläche von fcc Cu

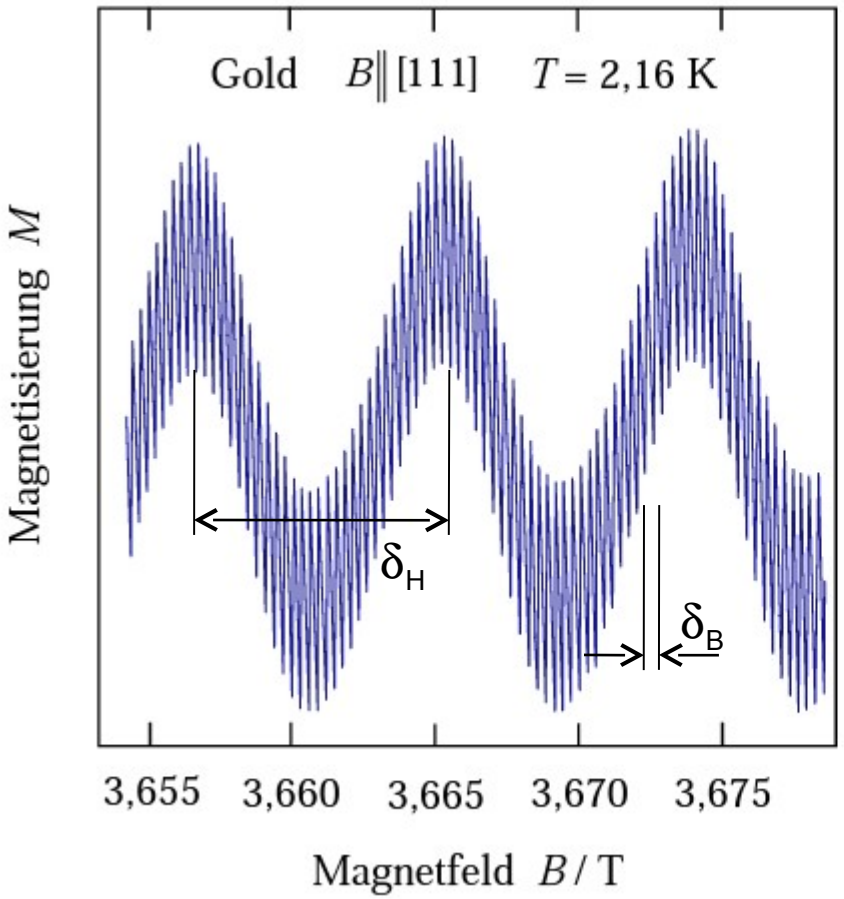


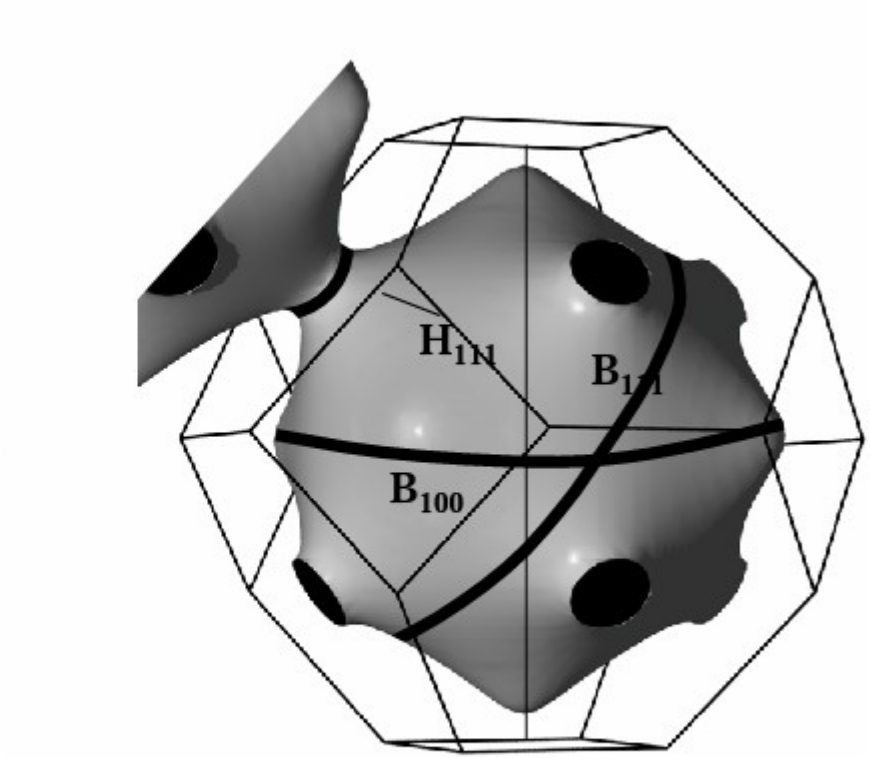
Bandstruktur von W(110)



8.4 Die Bandstruktur und die Fermi-Fläche

De Haas-van Alphen Effekt in Gold





aus Hunklinger