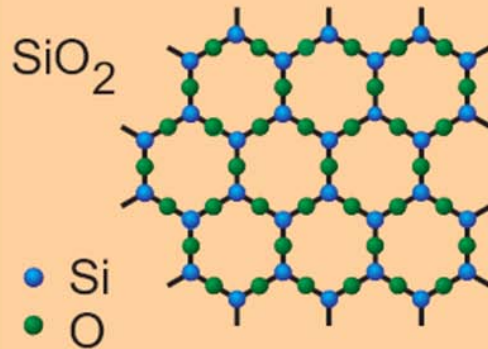
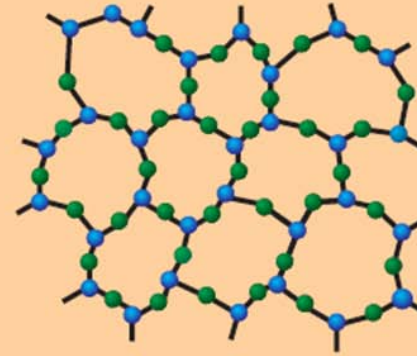


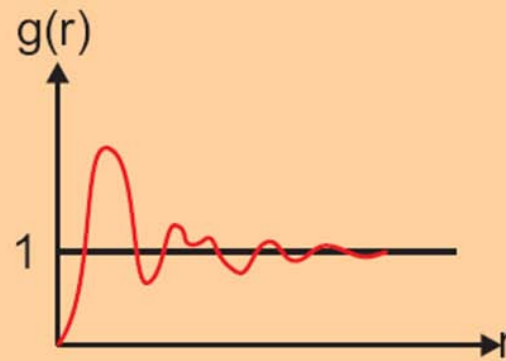
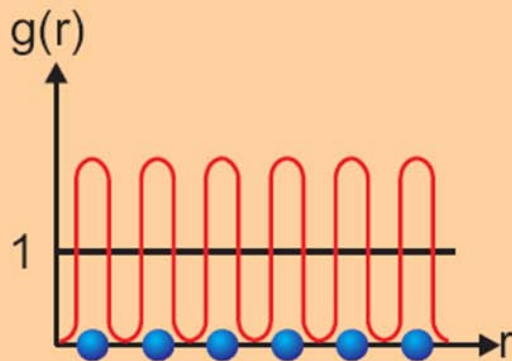
kristallin



amorph ("glasartig")



Paarverteilungsfunktion



© H.v.Löhneysen

1. Bindung im Festkörper

1. Bindungstypen
2. Bindungsenergie

2. Fluktuations-Bindung

1. Van-der-Waals-Kräfte
2. Lennard-Jones-Potential
3. Edelgaskristallen

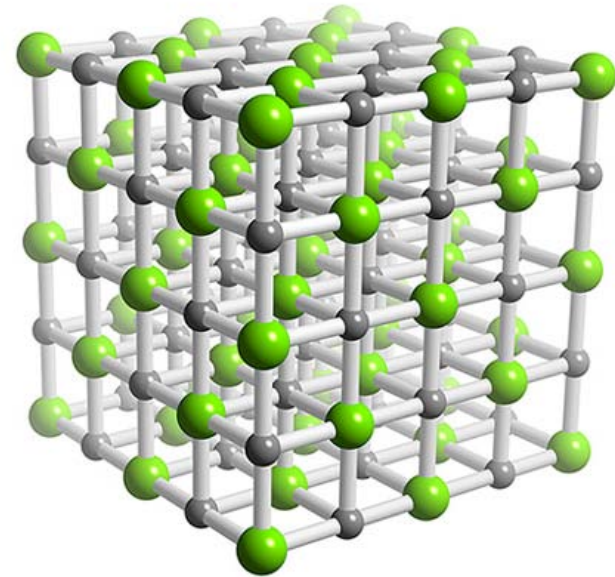
3. Ionenbindung

1. Bindungsenergie
2. Ionenkristallen

4. Kovalente Bindung

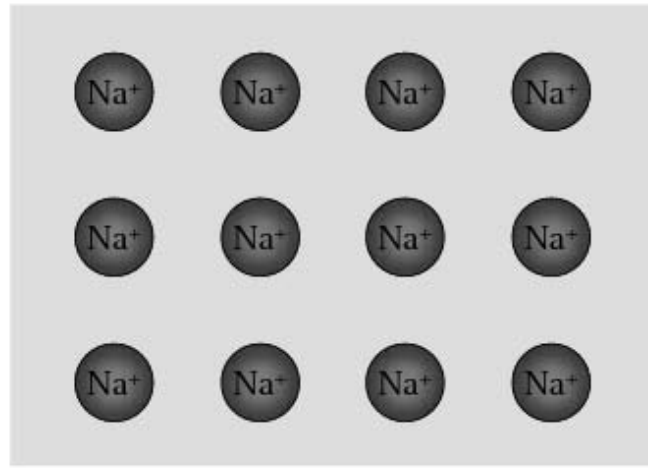
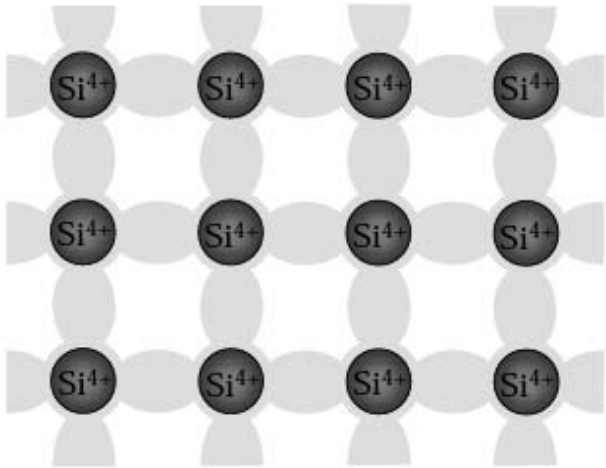
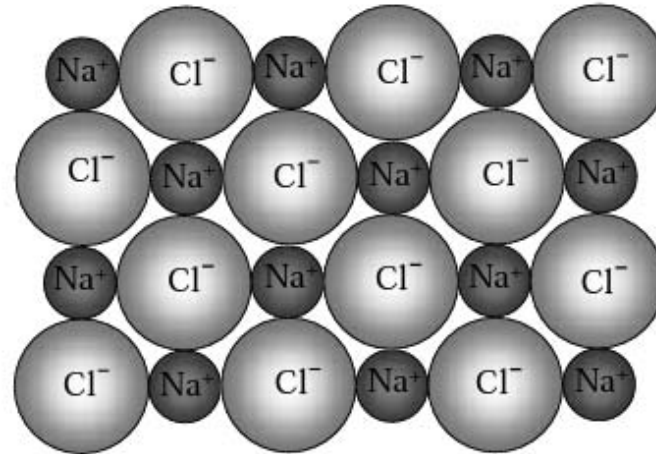
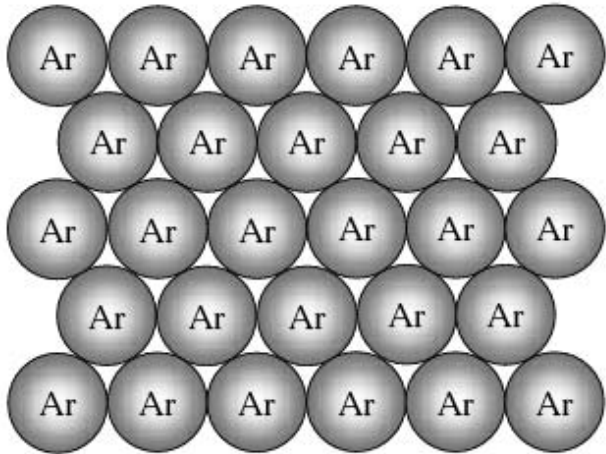
5. Metallische Bindung

6. Wasserstoffbrückenbindung



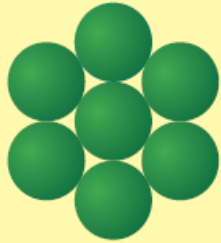
Bindungstypen:

Schematische 2D Darstellung

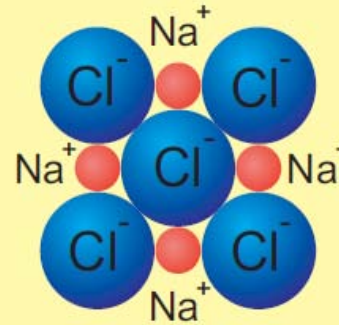


© S. Hunklinger

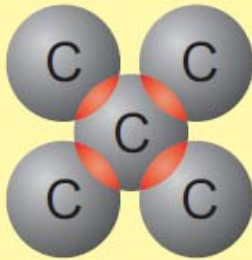
Bindungstypen in Kristallen



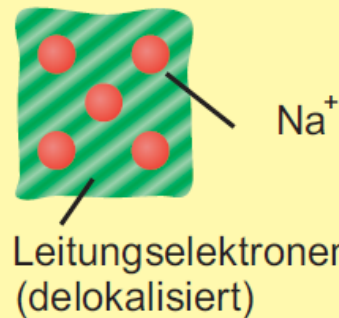
van der Waals-
Bindung
Edelgas-Kristalle



Ionenbindung
NaCl-Kristall



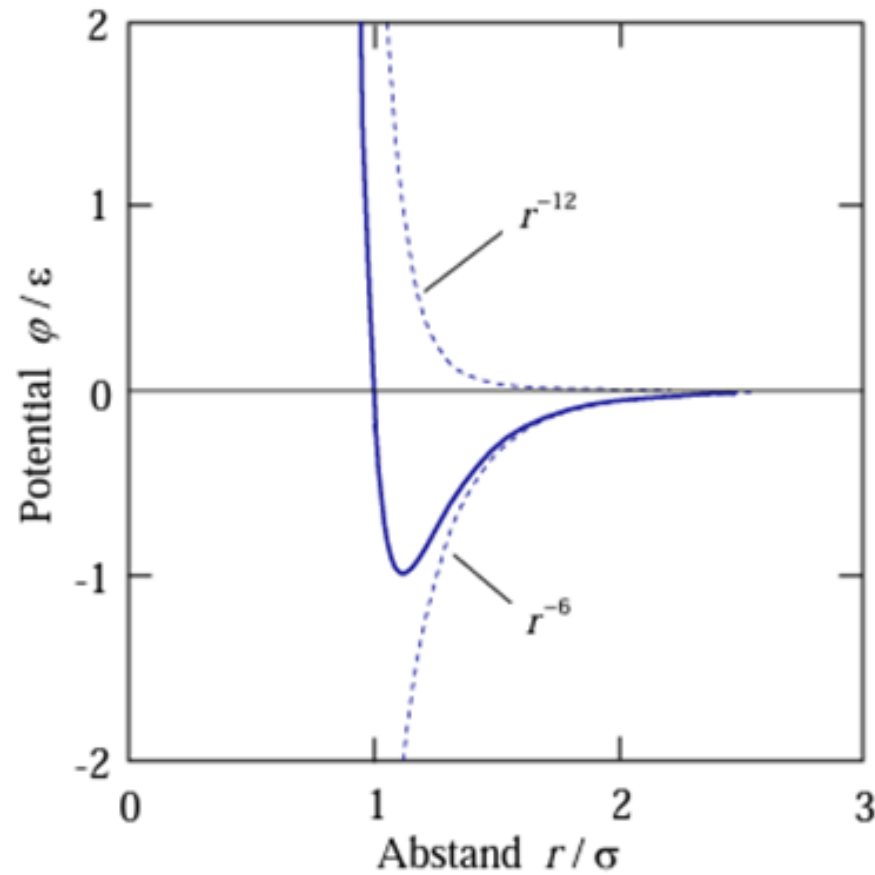
kovalente Bindung
Diamant

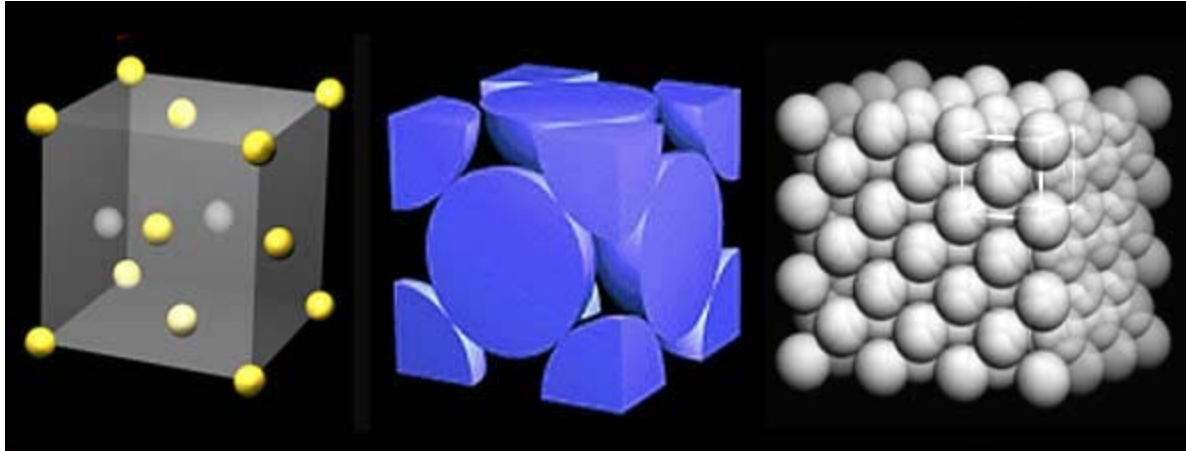


metallische Bindung
Natrium

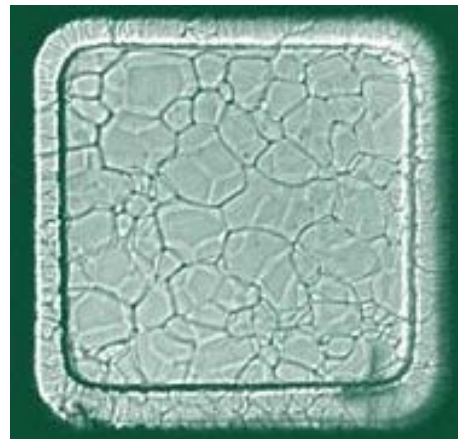
© H.v.Löhneysen

Lennard-Jones-Potential



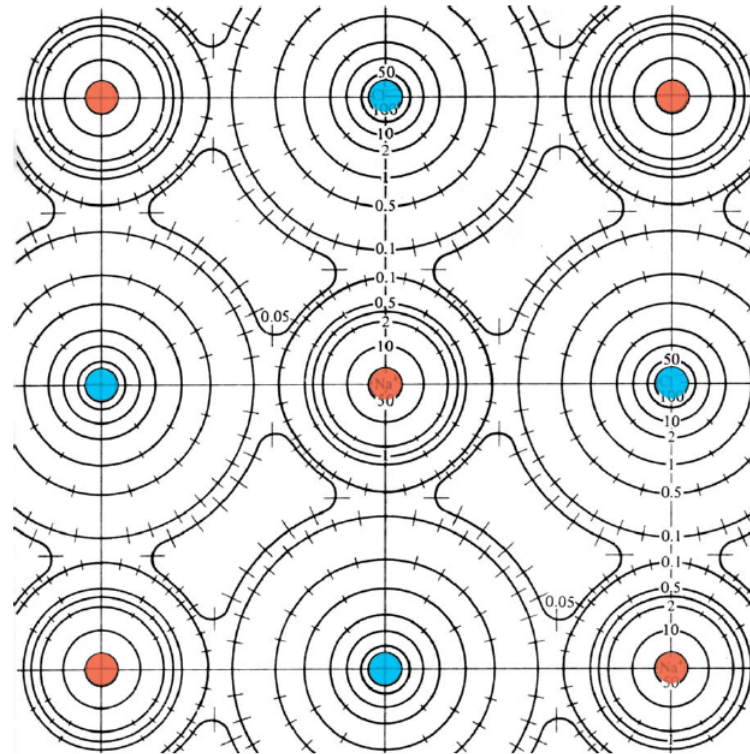
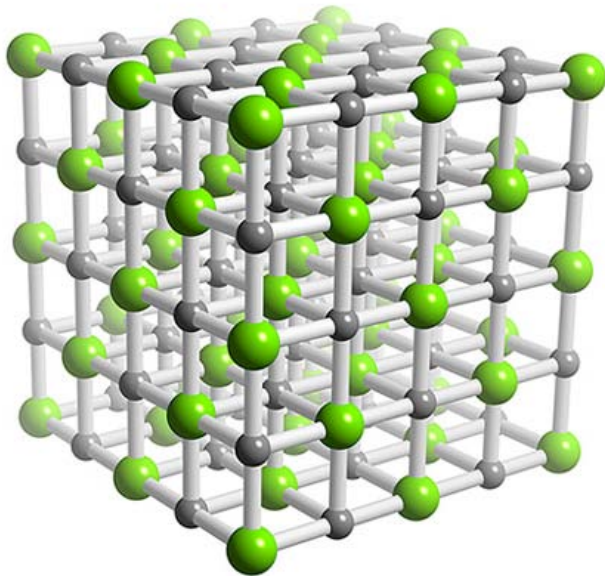


fcc lattice
fcc = face centered cubic
kubisch flächenzentrierte
Struktur



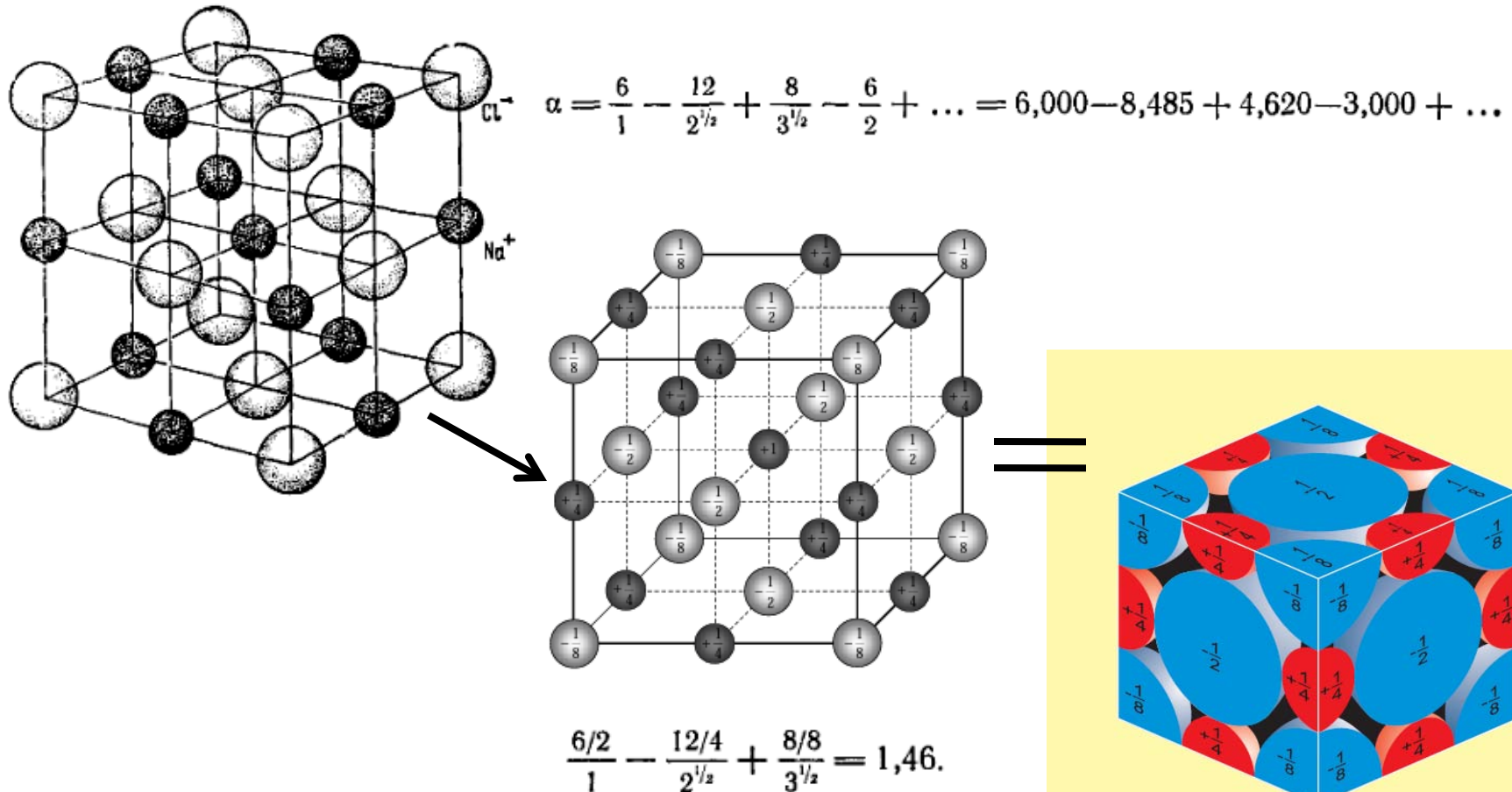
solid helium requires the
temperatures below $-272.2\text{ }^{\circ}\text{C}$
and over 40 atmosphere
pressure to exist

Ladungsverteilung im NaCl-Kristall



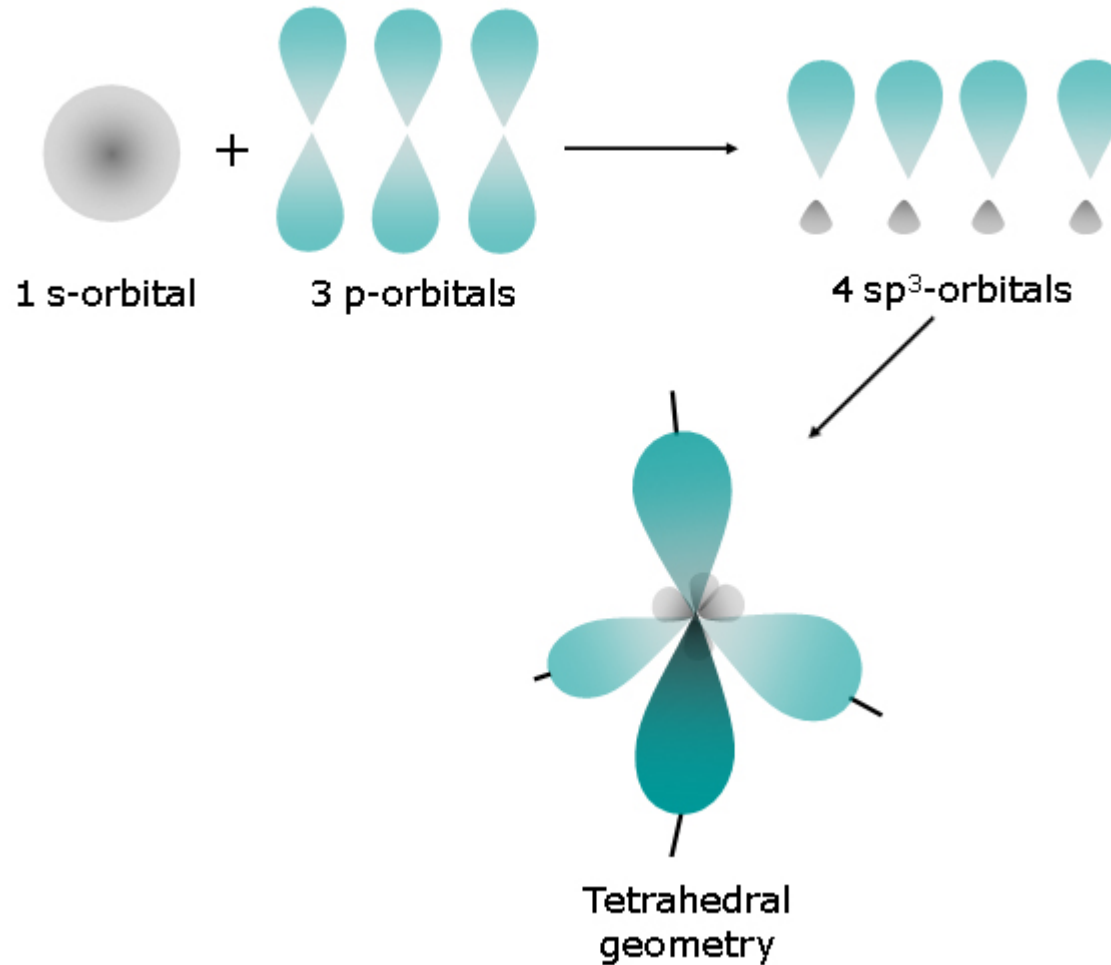
Die Zahlenangaben geben die Elektronendichte pro $\text{\AA}^3$.

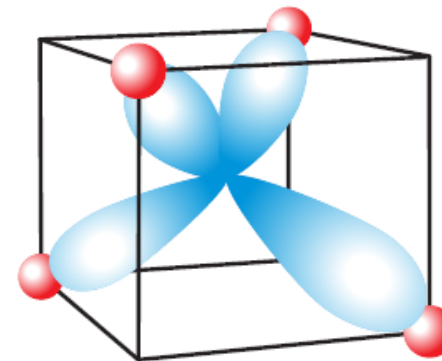
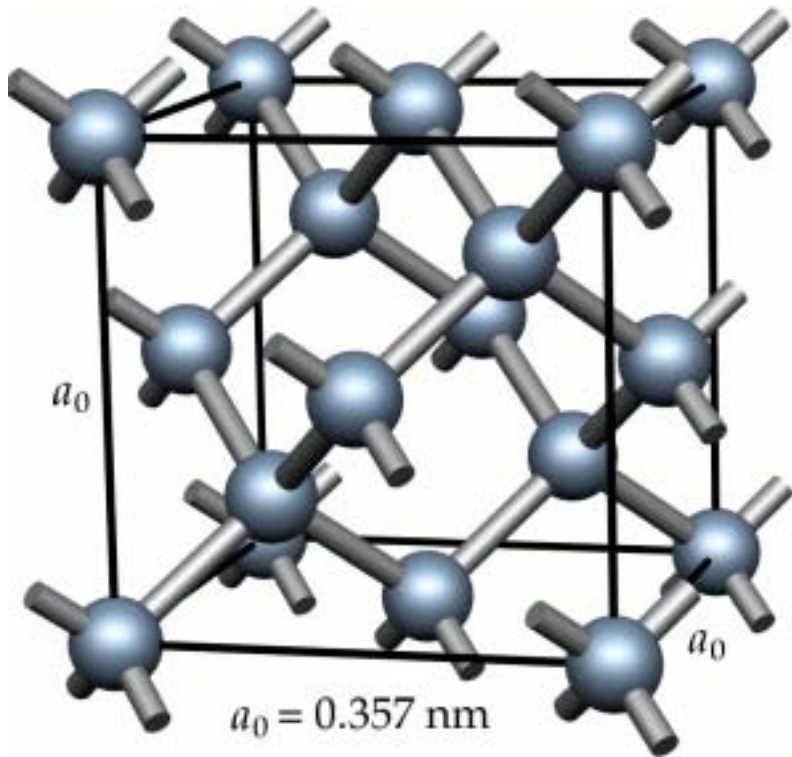
zur Berechnung der Madelung-Konstante: Evjen-Zelle für NaCl



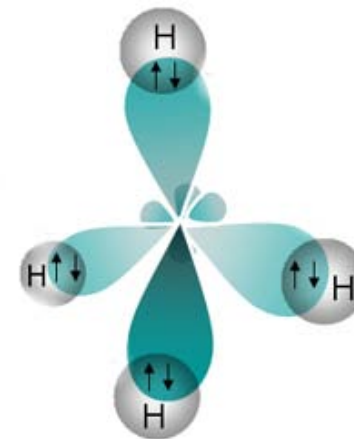
© S. Hunklinger

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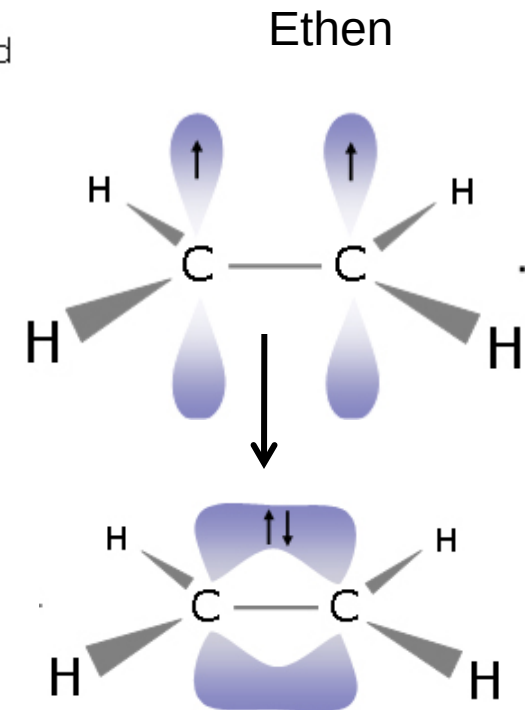
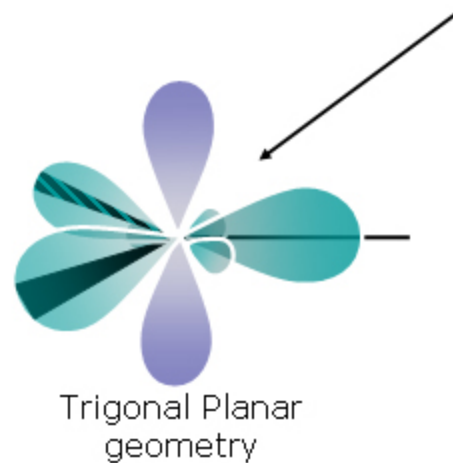
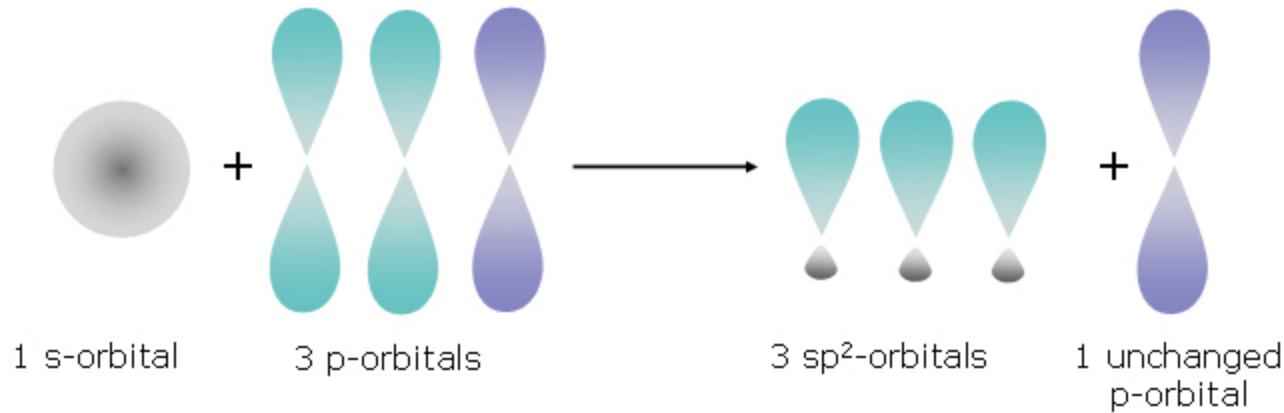


sp^3 -Hybridbindung
"Tetraeder-Bindung"

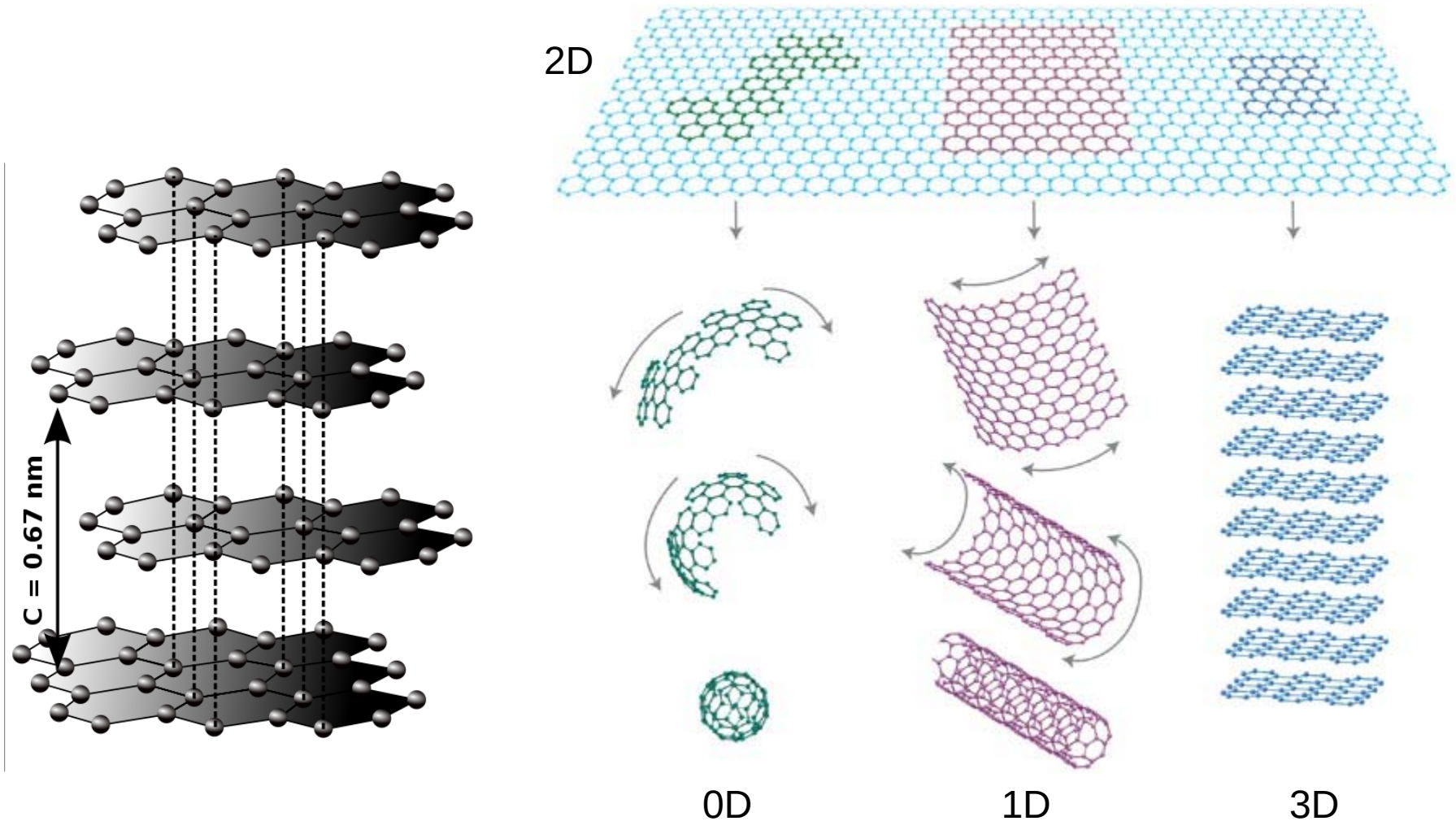


Methan

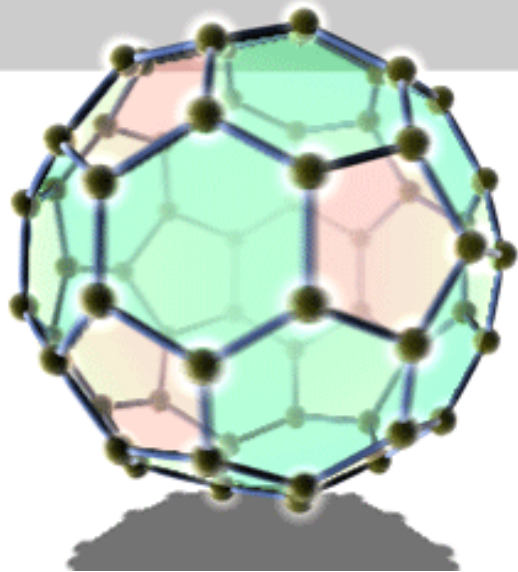
sp^2 -Hybridisierung



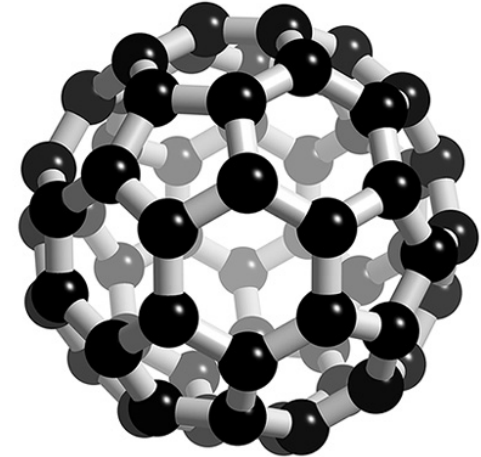
Carbon Materials: Graphit, Graphene, Nanotube, Fullerene



Fullerene C₆₀ und C₇₀



C₆₀



C₇₀

