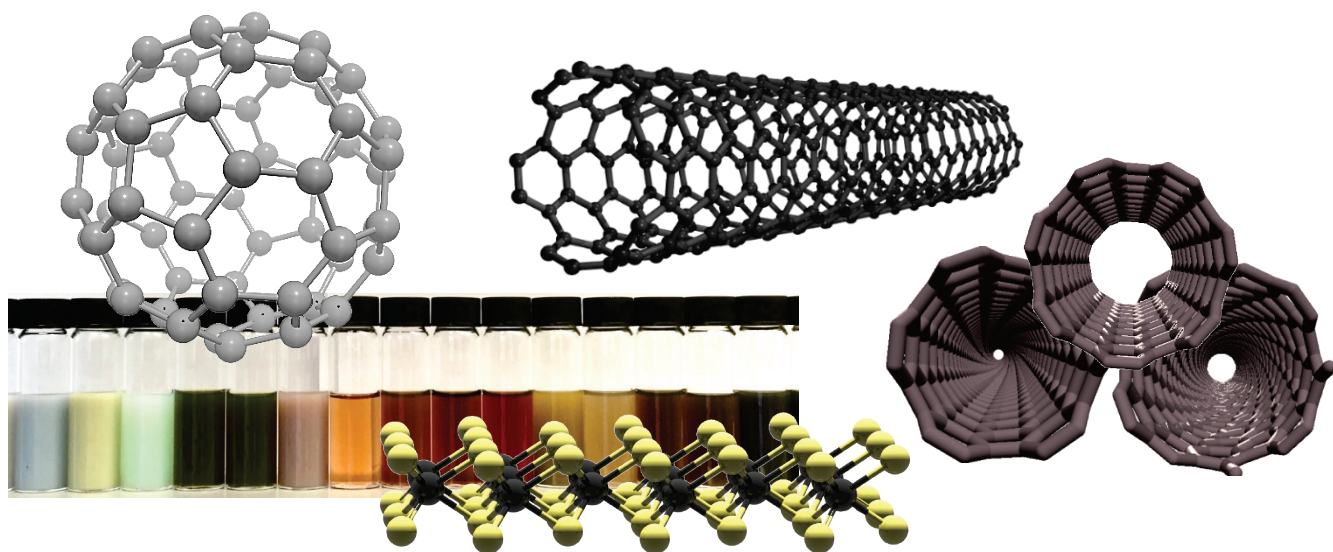


Physikalische Chemie der 0D - 2D Kohlenstoffallotrope

Prof. J. Zaumseil

Von Fullerenen, Graphen zu Nanoröhrchen und
neuen anorganischen 2D Materialien

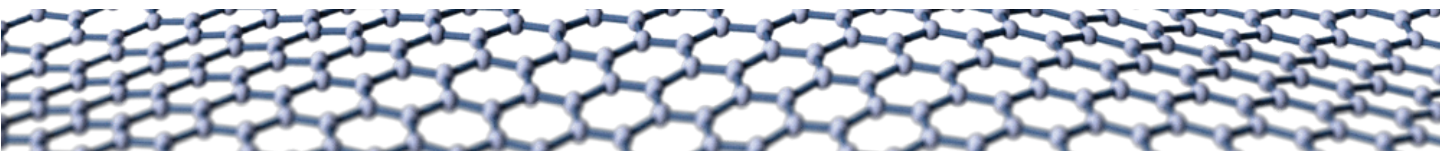


Herstellung / Synthese / Wachstum
Eigenschaften / Charakterisierung / Prozessierung
Anwendung als Materialien in der Optoelektronik

(Grundlagen für Forschungspraktika im AK Zaumseil)

**WiSe 2022/23, donnerstags 14:30 - 16:00 Uhr; INF 253 / R 211
(LSF#217230) Erste Vorlesung am **20.Okt. 2022****

Anmeldung per Email an apc@pci.uni-heidelberg.de



Lecture Contents

1. General Introduction and History of Carbon Allotropes

2. Fullerenes

- 2.1. Synthesis and Chemical Modification
- 2.2. Electrochemistry of fullerenes
- 2.3. Endohedral fullerenes
- 2.4. Fullerenes in FETs (+ Basics of FETs)
- 2.5. Fullerenes in OPVs (+ Basics of OPVs)

3. Graphene

- 3.1. Structure and Electronic Properties
- 3.2. Thermal und Mechanical Properties
- 3.3. Growth / Exfoliation / Processing
- 3.4. Characterization of Graphene
- 3.5. Applications

4. Other 2D Materials

- 4.1. Brief Intro: why inorganic 2D?
- 4.2. Layered materials: overview & classification
- 4.3. Production: How to exfoliate / grow ?
- 4.4. General Characterization

5. Carbon Nanotubes

- 5.0. Structure
- 5.1. Electronic Properties
- 5.2. Synthesis and Growth
- 5.3. Dispersion & Separation
- 5.4. Optical Properties (Abs, PL, Raman)
- 5.5. Applications in Optoelectronics
- 5.6. Toxicology & Medical Applications