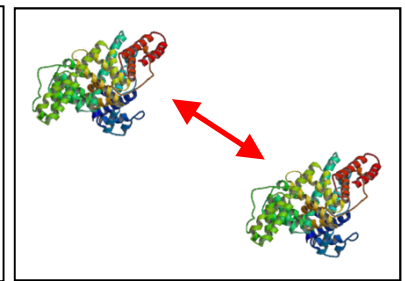
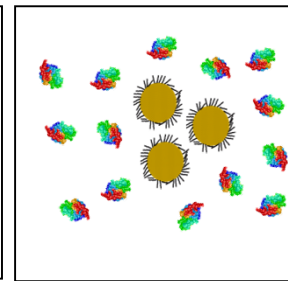
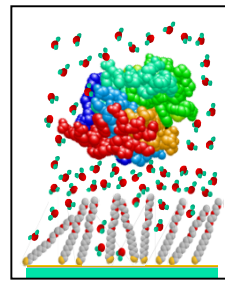
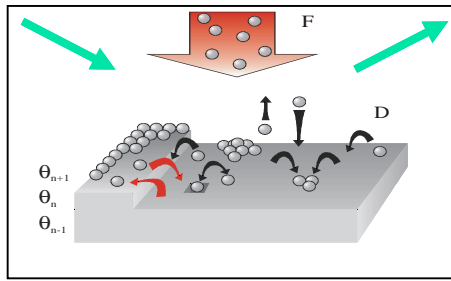
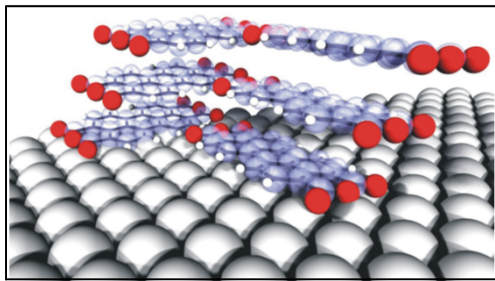


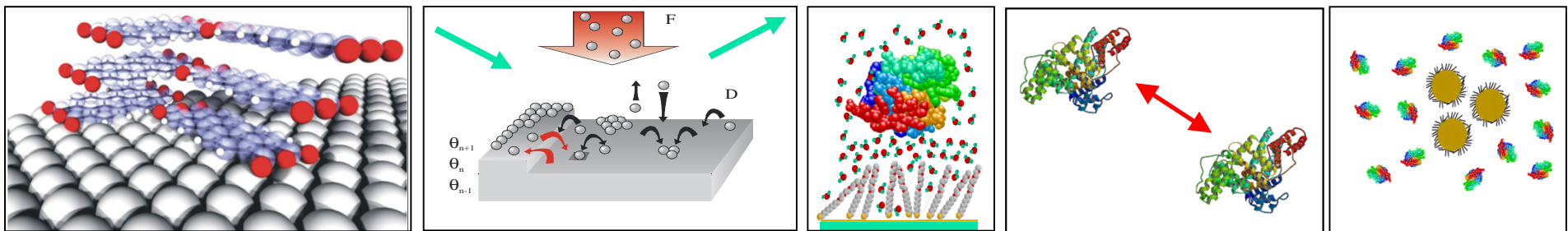
Molecular and Biological Matter "Nano-Science in Motion"



Molecular and Biological Matter

"Nano-Science in Motion"

- Welche Themen gibt es ?
- Wie wähle ich „mein Thema“ aus ?
- Was sind die Kriterien zur Auswahl ?
- Wie läuft die Arbeit in der Praxis ?
- Was muss ich sonst noch wissen ?

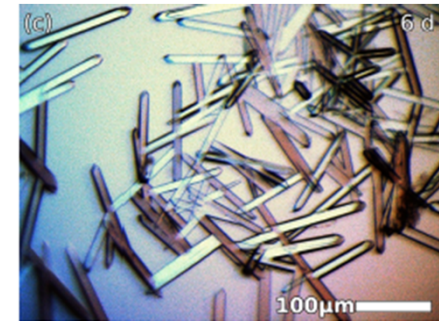


Frank Schreiber

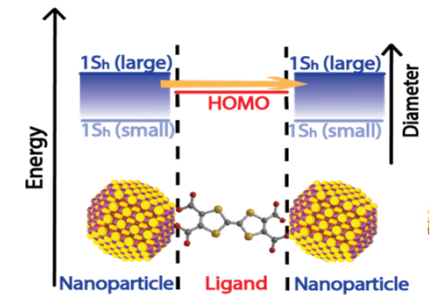
<http://www.soft-matter.uni-tuebingen.de>

Molecular and Biological Matter

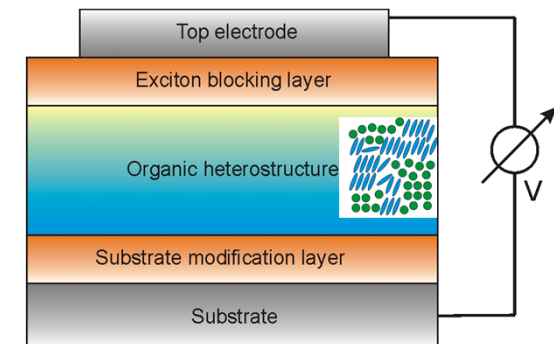
Protein Biophysics (Fajun Zhang)



COINs (Kooperation mit Marcus Scheele)

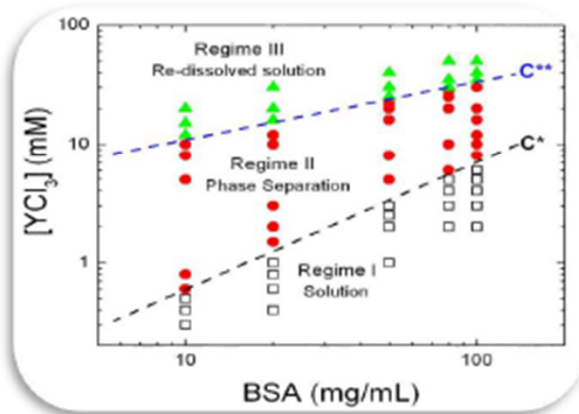


Organic Thin Films

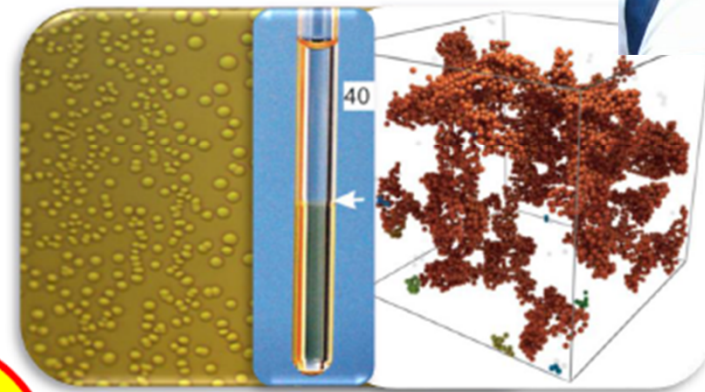


Brief reminder: Protein biophysics

Tuning Protein Interactions by Multivalent Ions

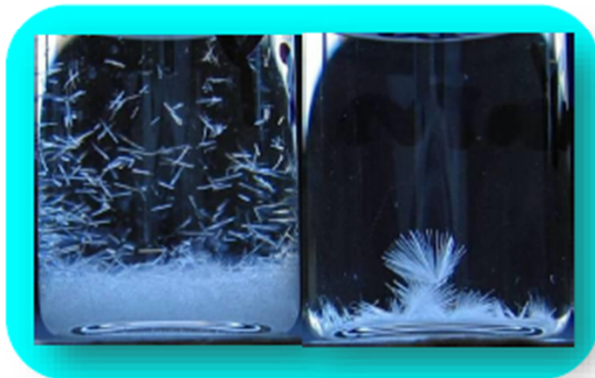


Reentrant condensation

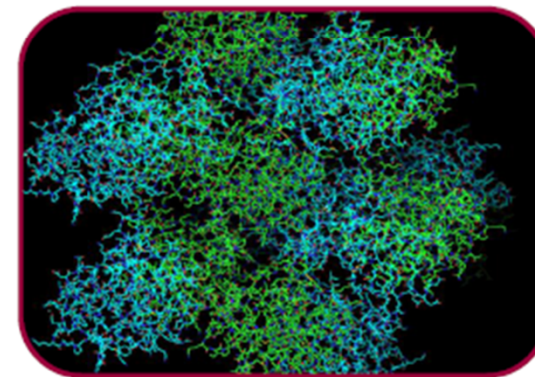


LLPS and Gelation

M^{3+}



Protein crystallization

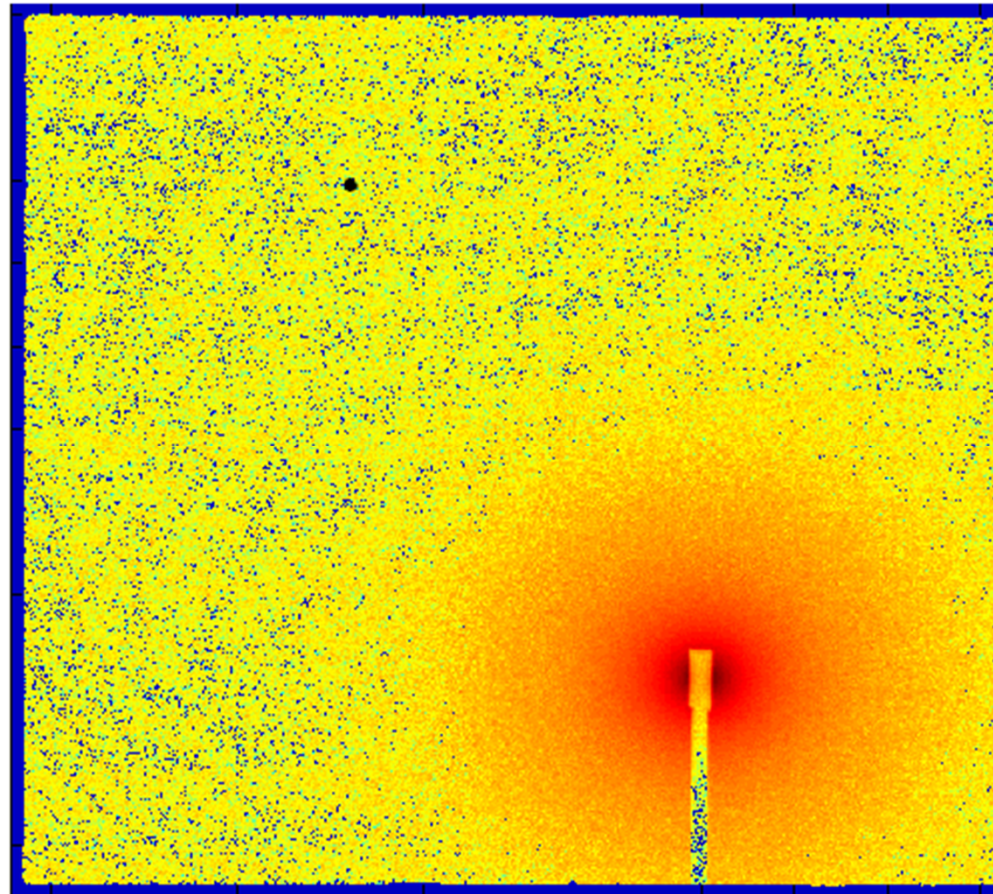
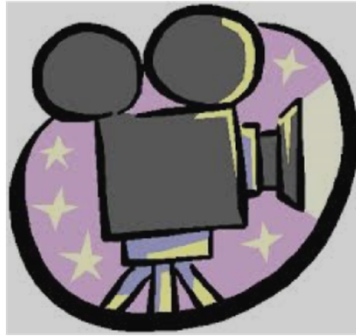


Static & Dynamic of Protein Clustering



Crystallization of BLG in the presence of Cd^{2+}

→ Observation by SAXS in real time (now as movie)
(smaller length scales than optical microscopy)

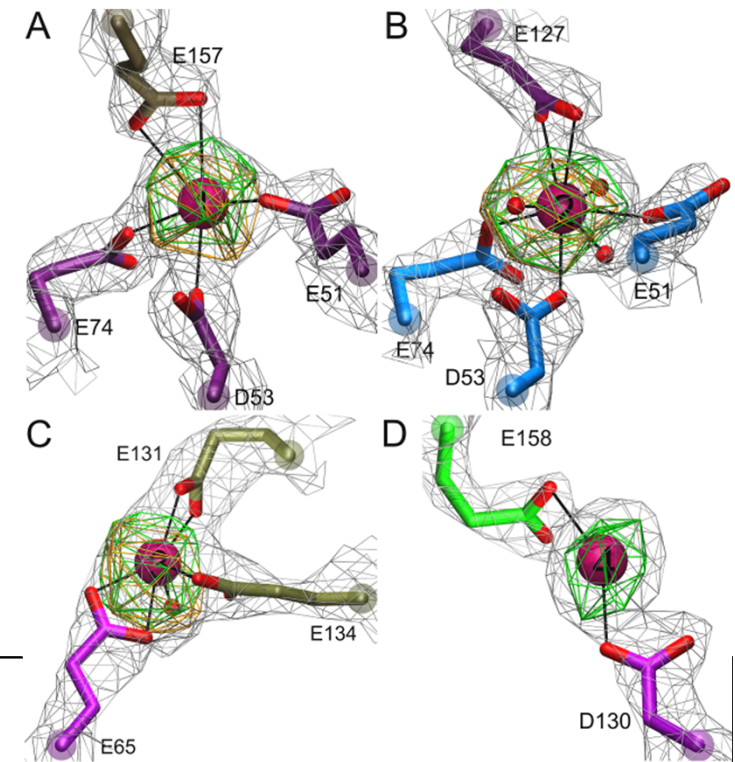
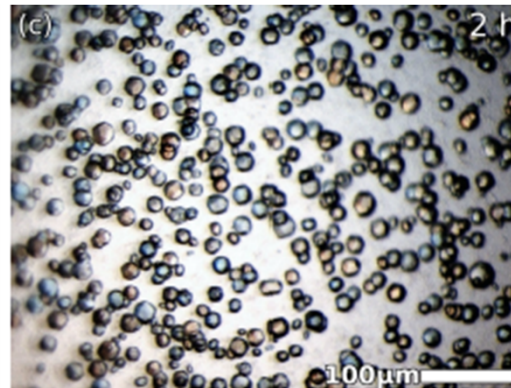
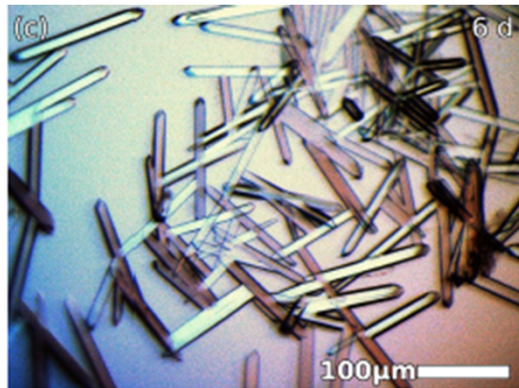


Mögliche Bachelor-Arbeiten

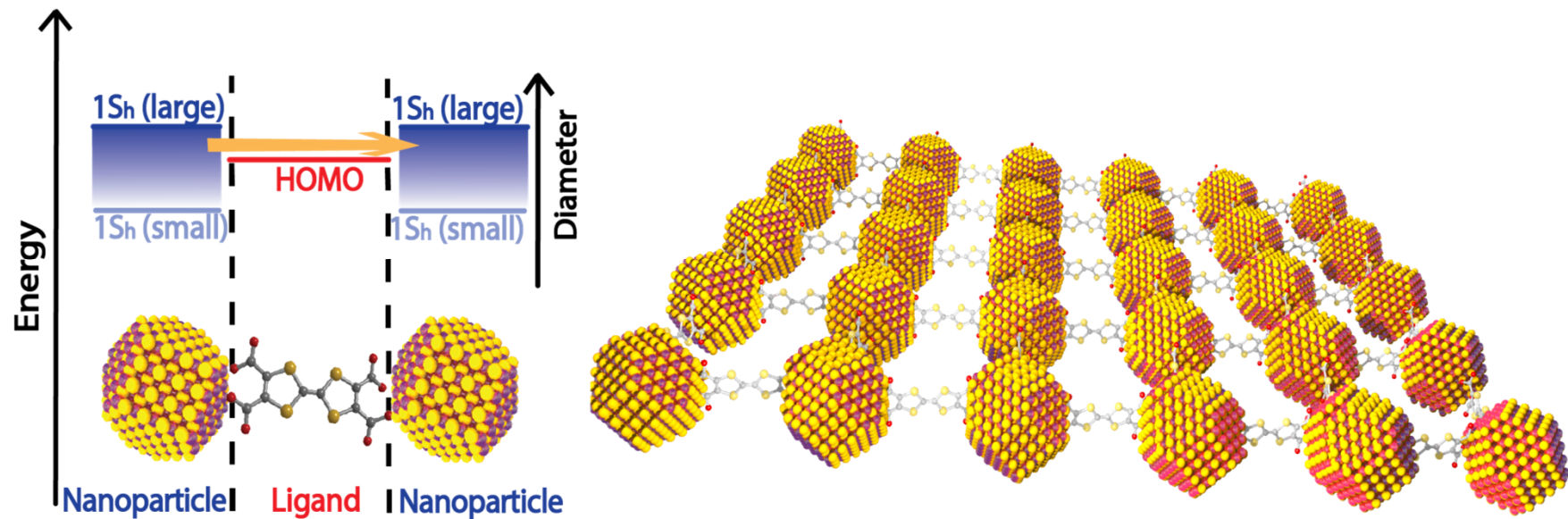
Bachelor thesis projects suggested by Fajun Zhang earlier



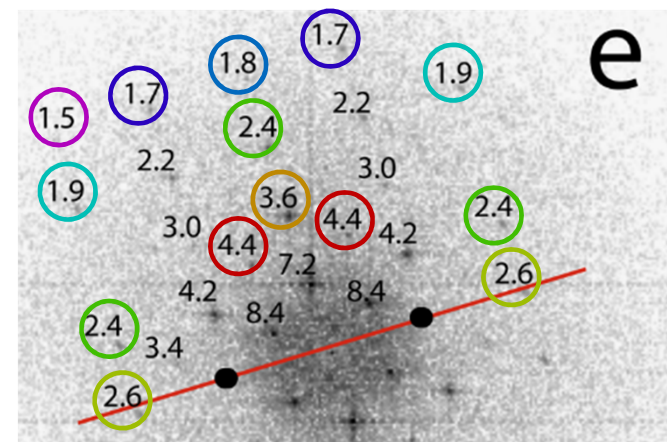
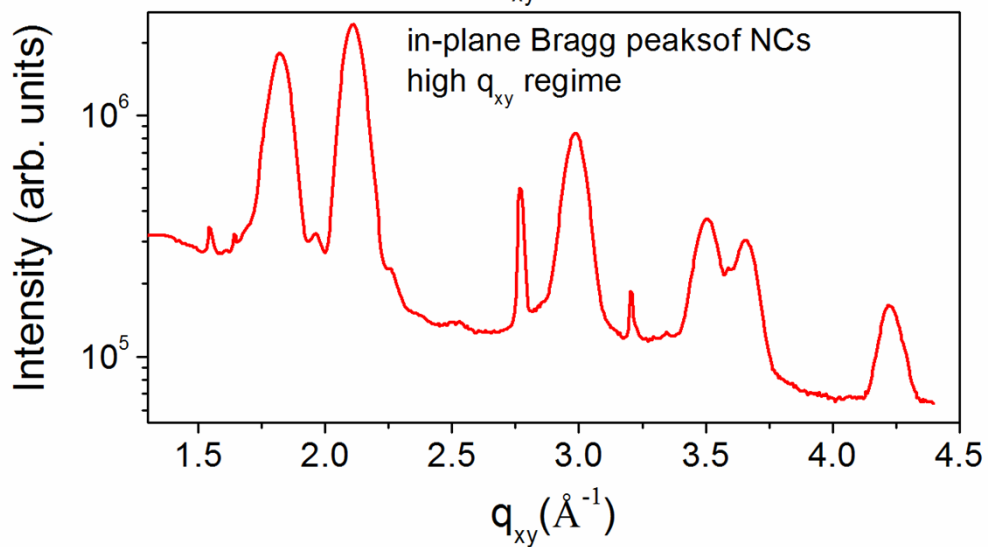
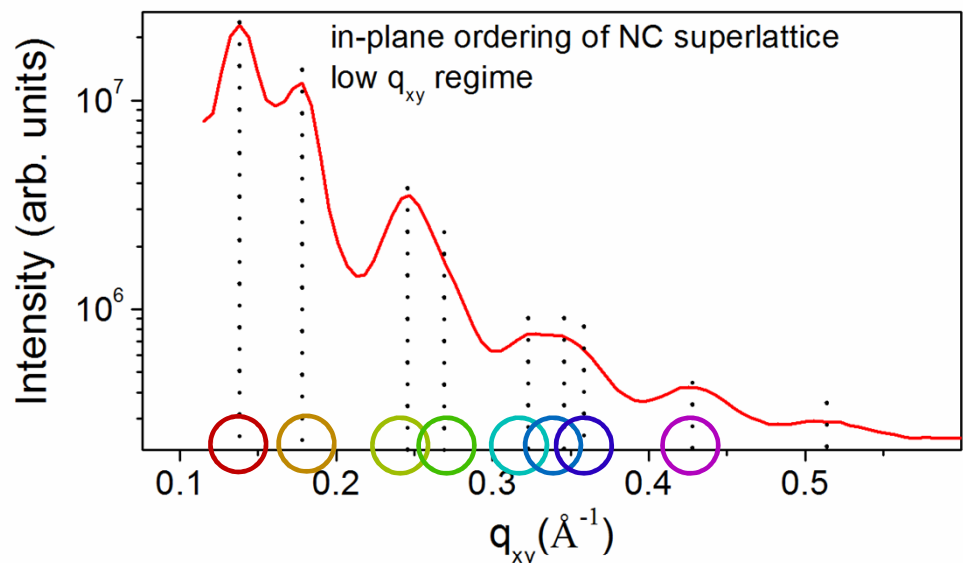
- Characterization of proteins and nanoparticles by SAXS
- Following protein crystallization by optical microscopy and SAXS
- Characterization of protein interactions & cluster formation
- Temperature sensitive smart materials based on LCST



Coupled Organic-Inorganic Nanostructures (COINs)

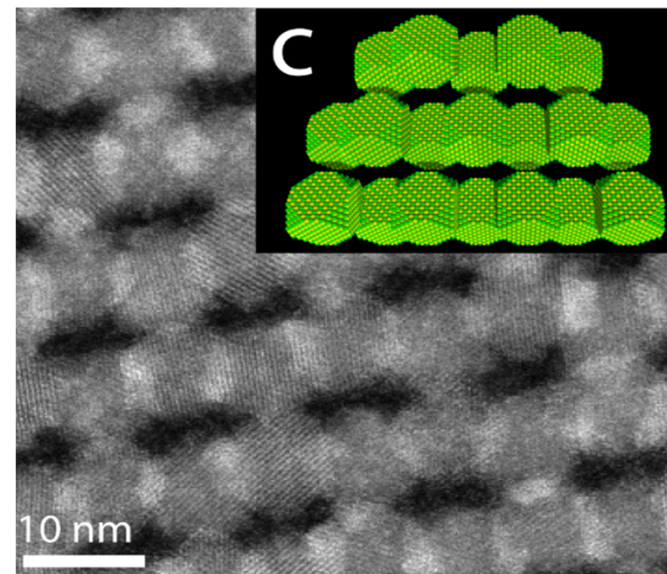


In-Plane Structure of PbS Mesocrystals



FFT and HAADF-STEM image

High-angle annular dark field scanning transmission electron microscopy

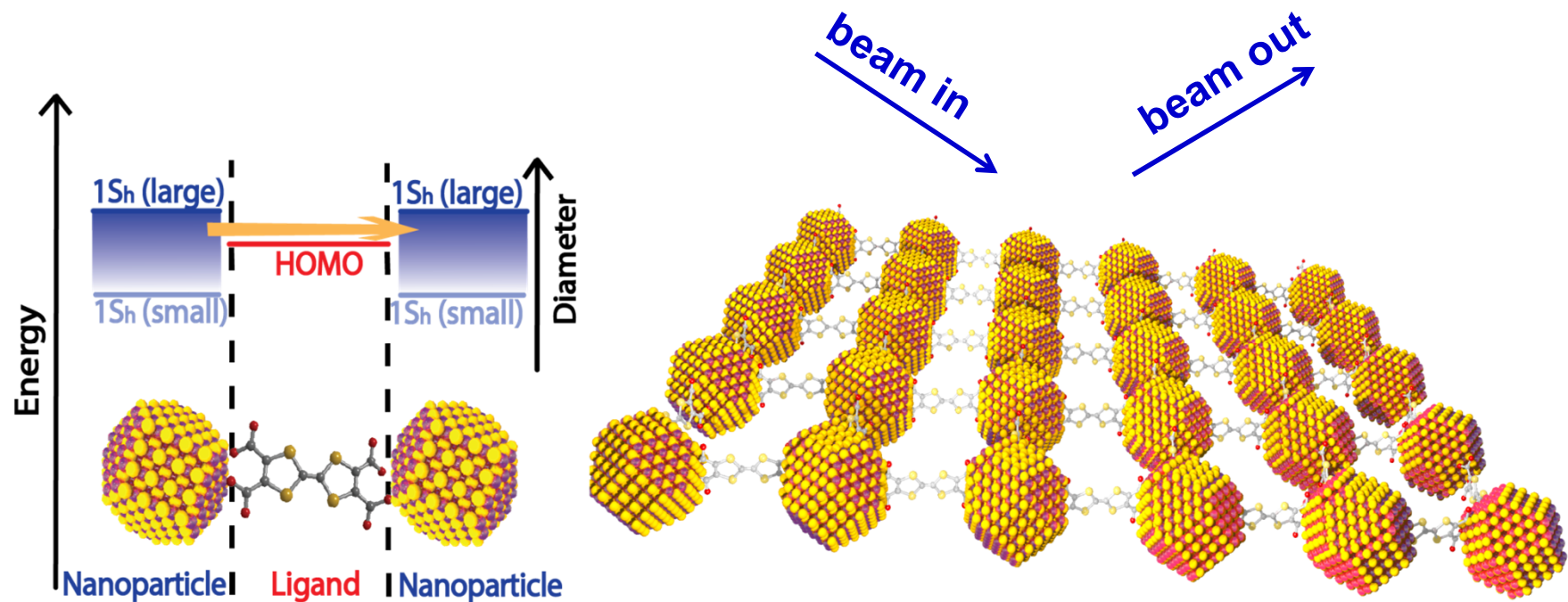


Mögliche Bachelor-Arbeiten

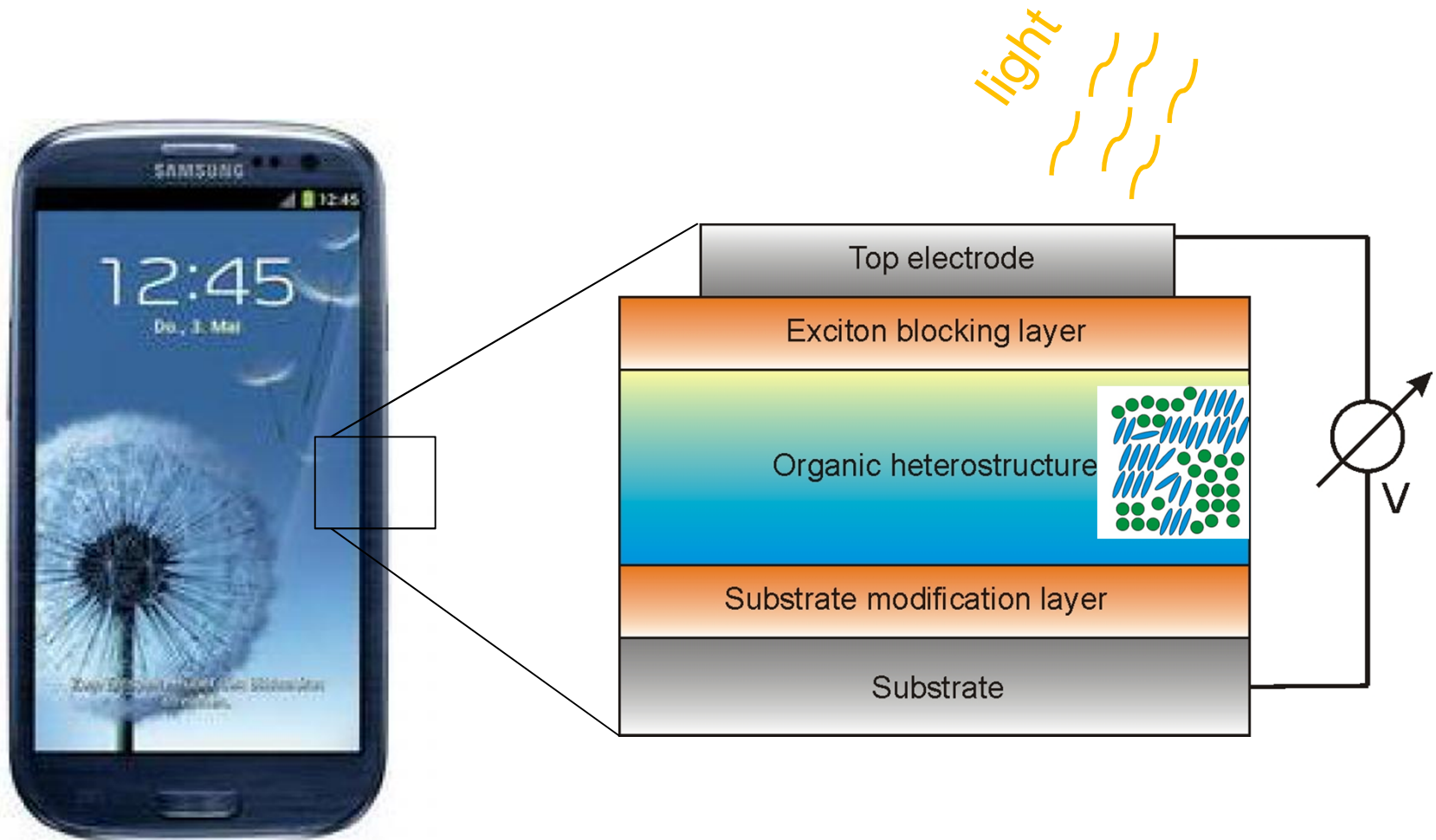
(in Kooperation mit Marcus Scheele)



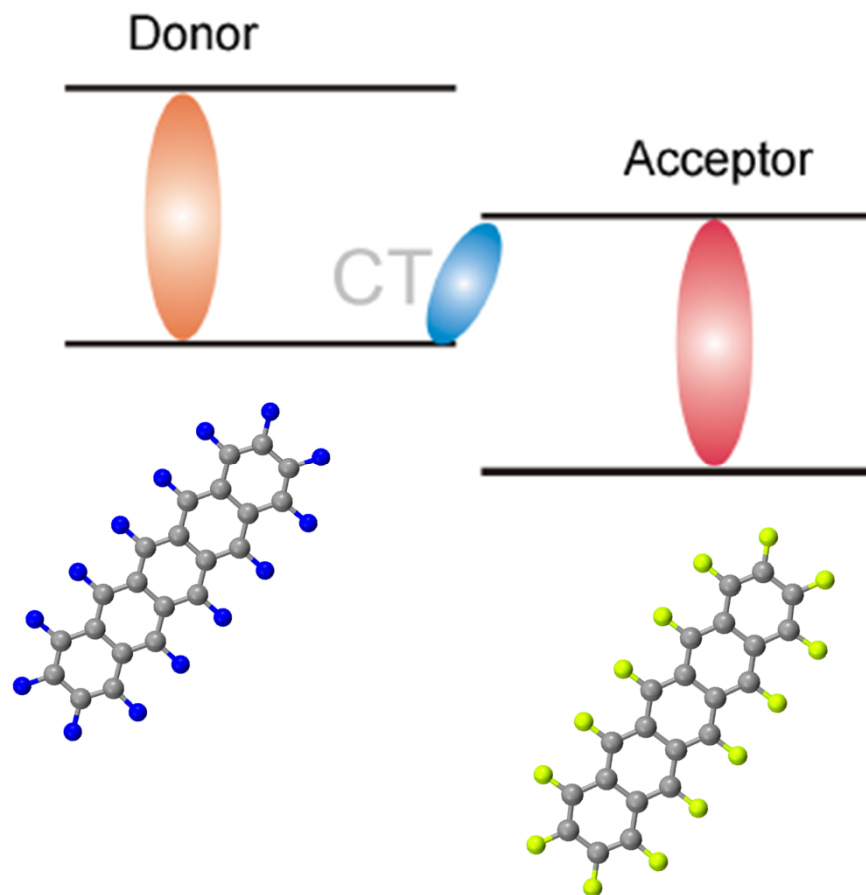
- Following COIN growth in real time
- Optical spectroscopy of COINs
- Towards switchable COINs ?



Organic Thin Films



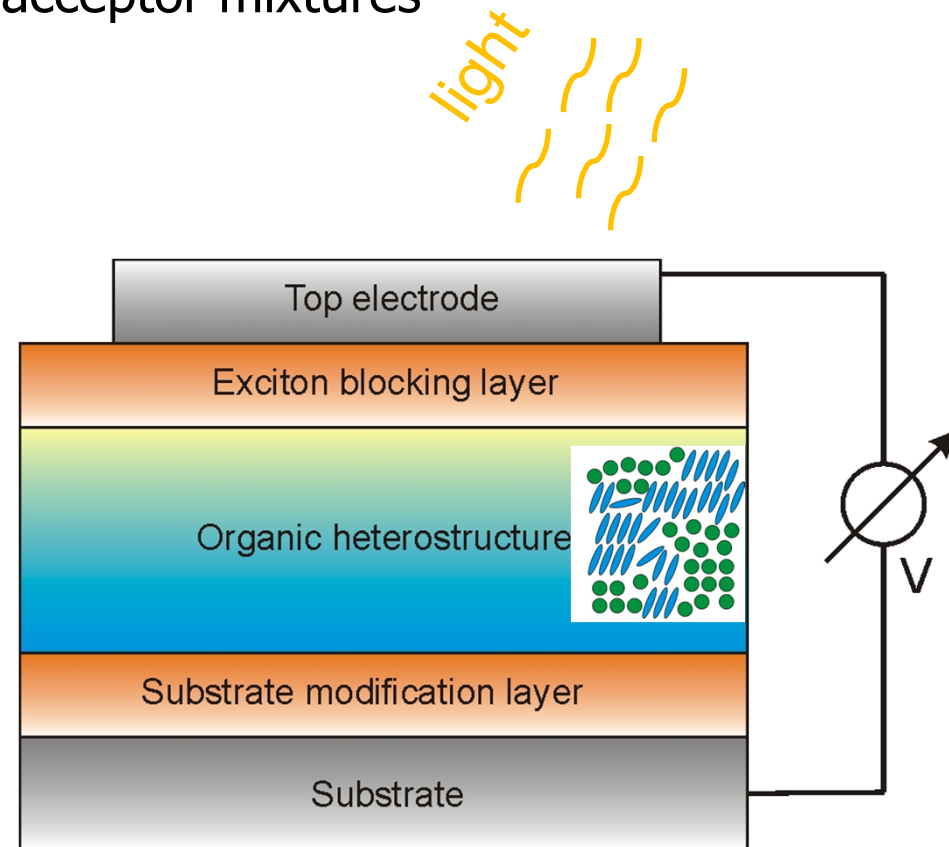
Charge Transfer Effects in Donor-Acceptor Mixtures



Mögliche Bachelor-Arbeiten



- Real-time growth study of donor-acceptor mixtures
- Optical spectroscopy of donor-acceptor mixtures



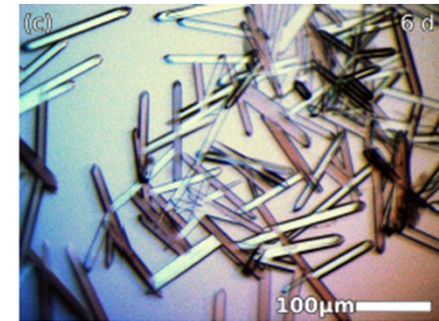
Molecular and Biological Matter

Mögliche Bachelor-Arbeiten

(z.T. Kombinationen 1-2 Studierende pro Thema möglich)

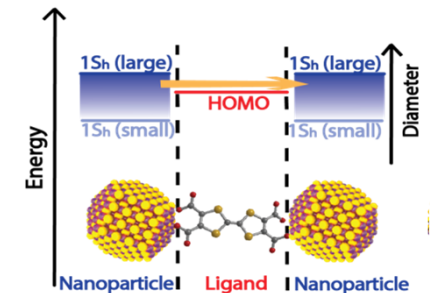
Protein Biophysics (Fajun Zhang)

- Characterization of proteins and nanoparticles by SAXS
- Following protein crystallization by microscopy and SAXS
- Protein interactions and cluster formation
- Temperature sensitive smart materials based on LCST



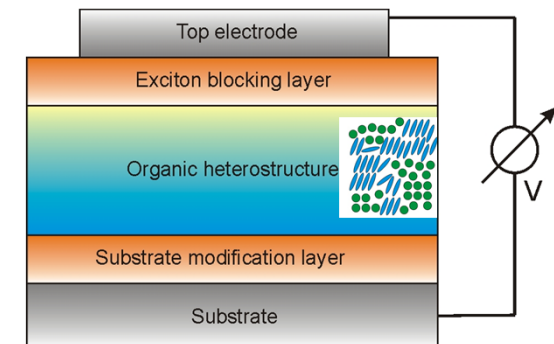
COINs (Kooperation mit Marcus Scheele)

- Following COIN growth in real time
- Optical spectroscopy of COINs
- Towards switchable COINs ?



Organic Thin Films

- Real-time growth study of donor-acceptor mixtures
- Optical spectroscopy of donor-acceptor mixtures



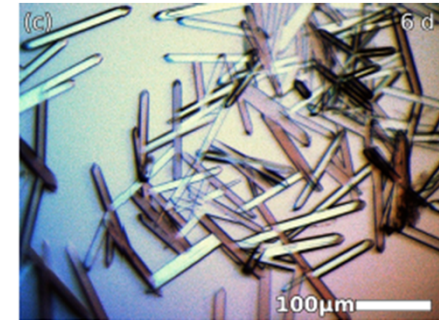
Molekulare und Biologische Materie

Mögliche Bachelor-Arbeiten

(z.T. Kombinationen 1-2 Studierende pro Thema möglich)

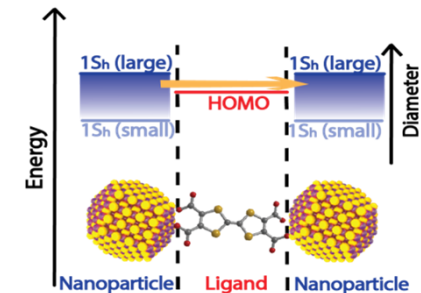
Protein-Biophysik (Fajun Zhang)

- Charakterisierung von Proteinen und Nanopartikeln mit SAXS
- Protein-Kristallisierung mit Mikroskopie und SAXS
- Protein-Wechselwirkungen und Cluster-Bildung
- Temperatur-sensitive "smart materials" mit LCST



COINs (Kooperation mit Marcus Scheele)

- COIN-Wachstum in Echtzeit
- Optische Spektroskopie von COINs
- Schaltbare COINs ?



Organische dünne Schichten

- Wachstum von Donator-Akzeptor-Mischungen in Echtzeit
- Optische Spektroskopie von Donator-Akzeptor-Mischungen

