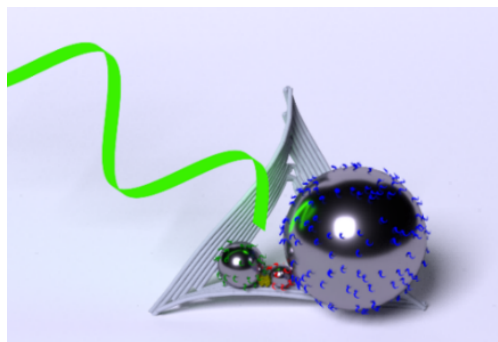


Hybrid Nanostructures

Description



The research of the working group Hybrid Nanostructures under the leadership of Prof. Ilko Bald combines different methods from DNA nanotechnology, optical spectroscopy and scanning probe microscopy in order to study physico-chemical processes at the single-molecule level. The aim is to develop novel analysis methods for their application in different fields, such as the precise

diagnostics using optical fibers modified with nanomaterials. Apart from methods development, specific questions such as nucleotide sequence dependence of DNA radiation damage and the mode of action of radiosensitizers that are applied in tumor radiation therapy are being investigated. Furthermore, chemical processes on the surface of plasmonic nanostructures that are triggered by electron transfer are analysed.

Details

- Nanoparticles
 - Substrates for surface-enhanced Raman scattering
 - Hybrid structures of metallic nanoparticles and DNA nanostructures
 - Gold and silver nanolenses
- DNA nanostructures, esp. DNA origami
- Surface- and nanoanalytics
- Fiber-optic sensors

Methods

- Atomic force microscopy (AFM)
- Raman spectroscopy und -microscopy
- Surface-enhanced Raman scattering
- DNA nanotechnology

Scientific literature

- *Interaction of 4-Nitrothiophenol with low energy electrons - Implications for plasmon mediated reactions*; R. Schürmann, T. F. M. Luxford, I. Vinklarek, J. Kocisek, M. Zawadzki and I. Bald *J. Chem. Phys.* **2020**, *153*, 104303.
- *The potential of DNA origami to build multifunctional materials*; K. Tapio and I. Bald *Multifunct. Mater.* **2020**, *3*, 032001.
- *Length and Energy Dependence of Low-Energy Electron-Induced Strand Breaks in Poly(A) DNA*; K. Ebel and I. Bald *Int. J. Mol. Sci.* **2020**, *21*, 111.

Further informations: <https://www.uni-potsdam.de/en/hns/publications>

Applications

- Sensors
- Medical therapy and diagnostics
- Nanomaterials
- Plasmon-catalysis

Keywords

- Hybrid nanostructures
- DNA origami
- DNA radiation damage
- Nanoparticles
- Plasmon chemistry
- Biosensors
- Optical sensors

Interest in cooperation

- Research cooperation
- Contract research

Contact

Transfer Service

Tel: 0331 / 977 61 71

Fax: 0331 / 977 38 70

tech@potsdam-transfer.de

Potsdam Transfer

Center for start-ups, innovation & transfer of knowledge and technology

Karl-Liebknecht-Straße 24–25,
Haus 29

14476 Potsdam

www.potsdam-transfer.de

Date 01.03.2021