IFNANO

INSTITUT FÜR NANOPHOTONIK

Mediator between academia and industry

Hainer Wackerbarth

Information about the institute

Institut für Nanophotonik Göttingen e. V.
(founded in 1987 as Laser-Laboratorium Göttingen e.V.)

55 Staff members, 20 scientists and 14 PhD students

4 Departments:

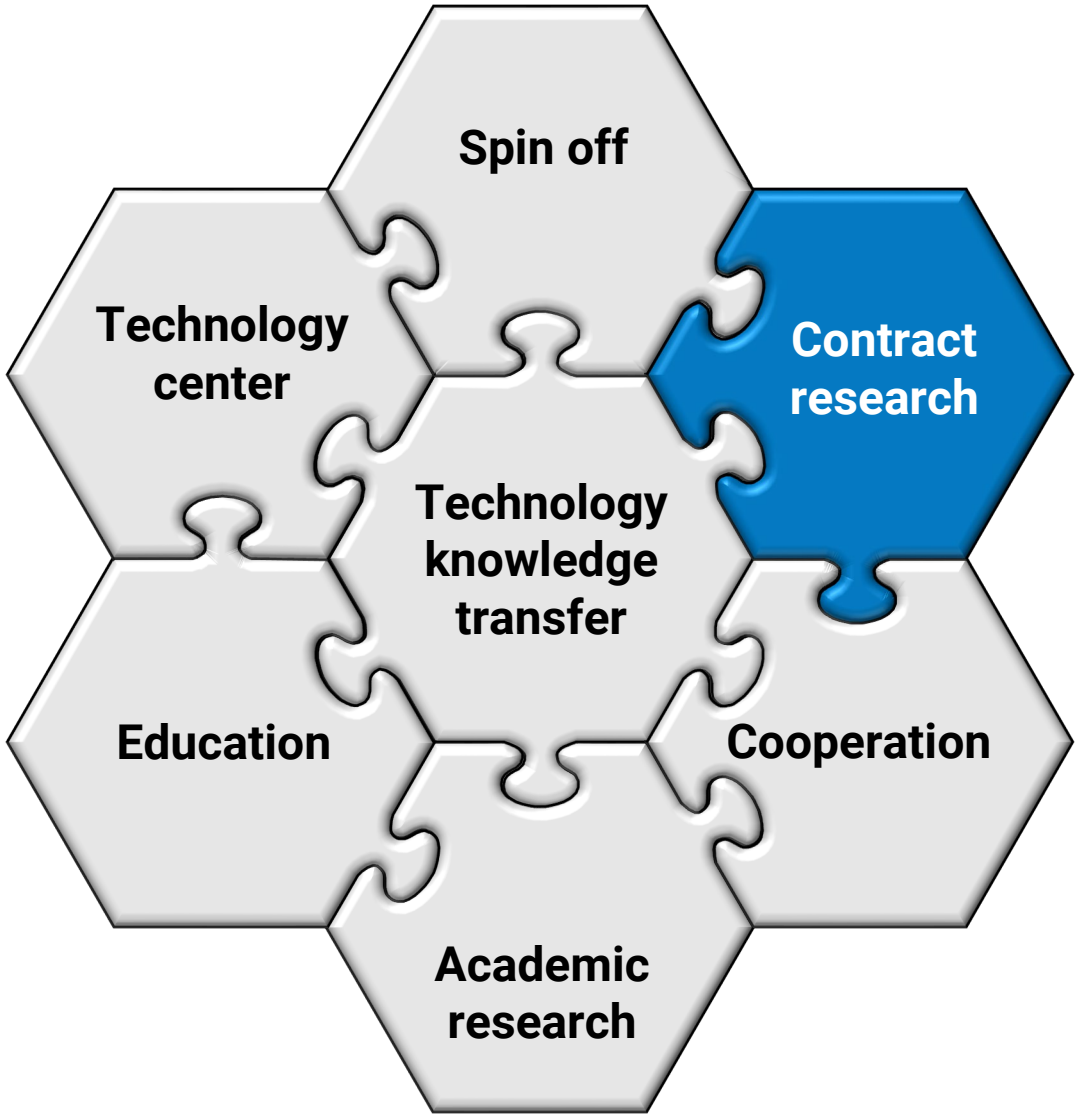
- Optical Nanoscopy (Nobel Laureate Prof. S. Hell, 2014)
- Short Pulses / Nanostructures
- Optics / Short Wavelength
- Photonic Sensor Technology

- Intermediary function between academia and industry
- Application-oriented basic research in the field of optical technologies
- Non-profit making, supported by the State Lower Saxony
- Promotion of science and research via technology and knowledge transfer

https://www.ifnano.de/en/

Technology and knowledge transfer

IFNANO
INSTITUT FÜR NANOPHOTONIK



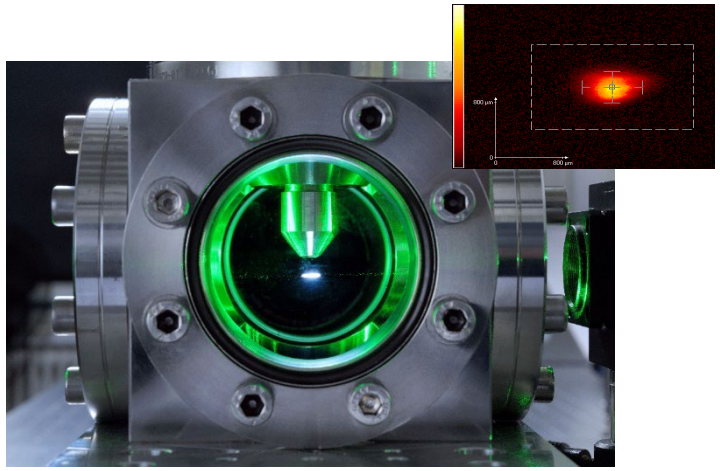
QIOPTIQ Photonics for Innovation An Excelitas Technologies Company
Mahr
abberior INSTRUMENTS
ZEISS
Volkswagen
zell -kontakt
JENOPTIK
vereta
B BRAUN
BERLINER GLAS
SCHOTT glass made of ideas
Heraeus
u-nica
INNOLAS LASER
Nikon
ARDOP OPTICS & OPTOELECTRONICS
ASML
OPTIMAX
ShinEtsu

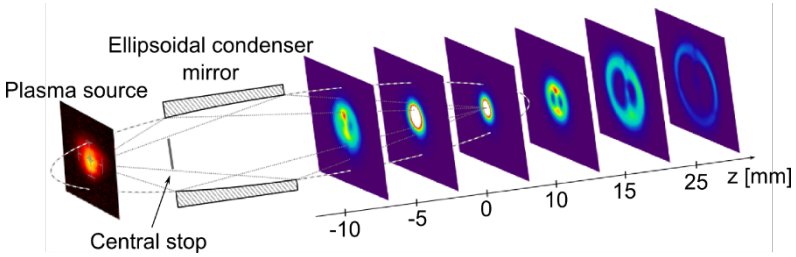
Photonics is an “Enabler” which can contribute to solve the great challenges of our times.

Department Optics / Short Wavelengths

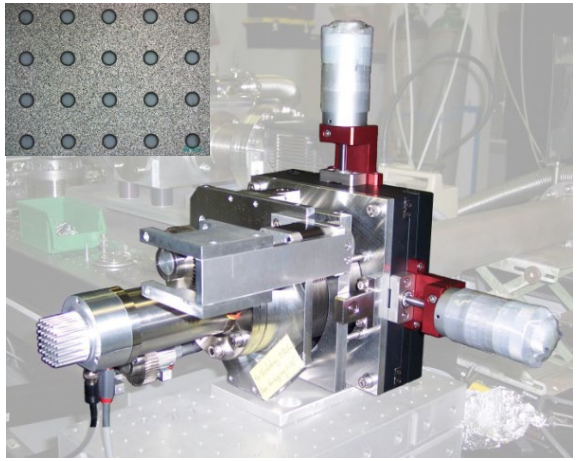
IFNANO
INSTITUT FÜR NANOPHOTONIK

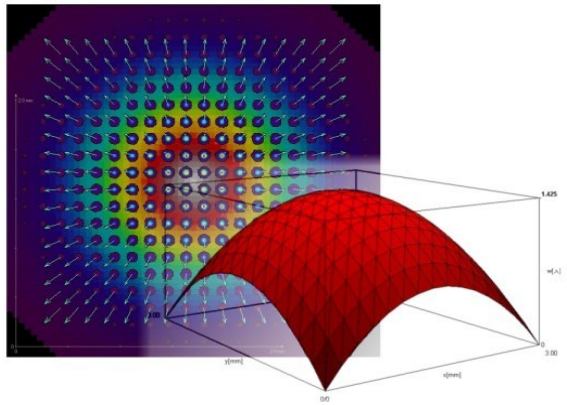
EUV- & soft X-ray



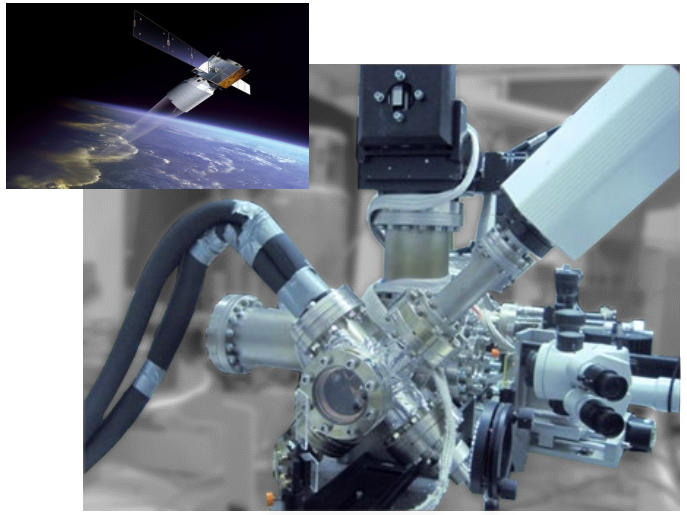


Characterization of light sources





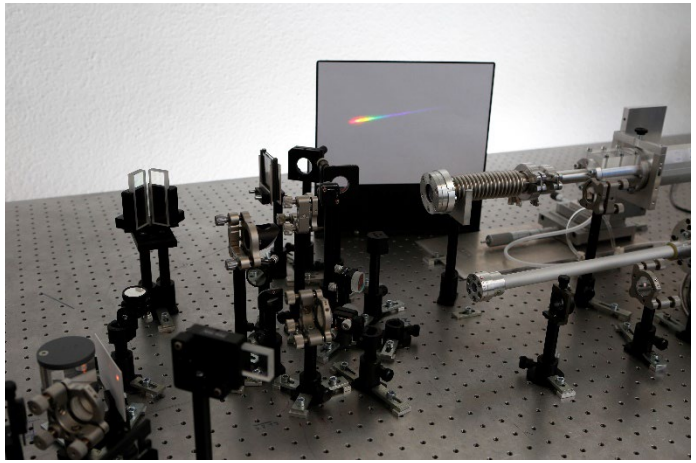
Characterization of optics

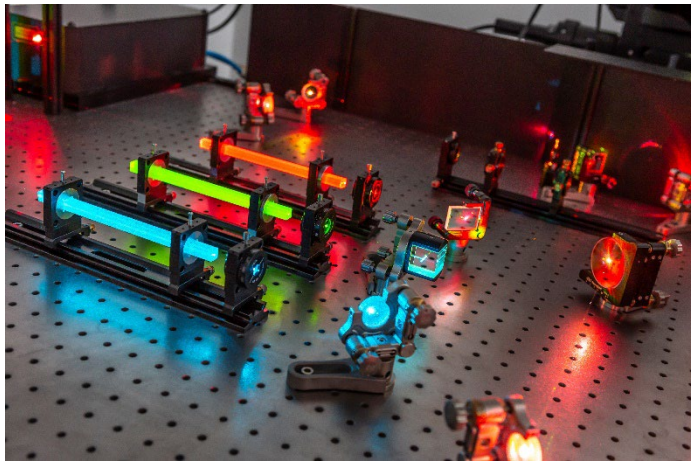


Department Short Pulses / Nanostructures

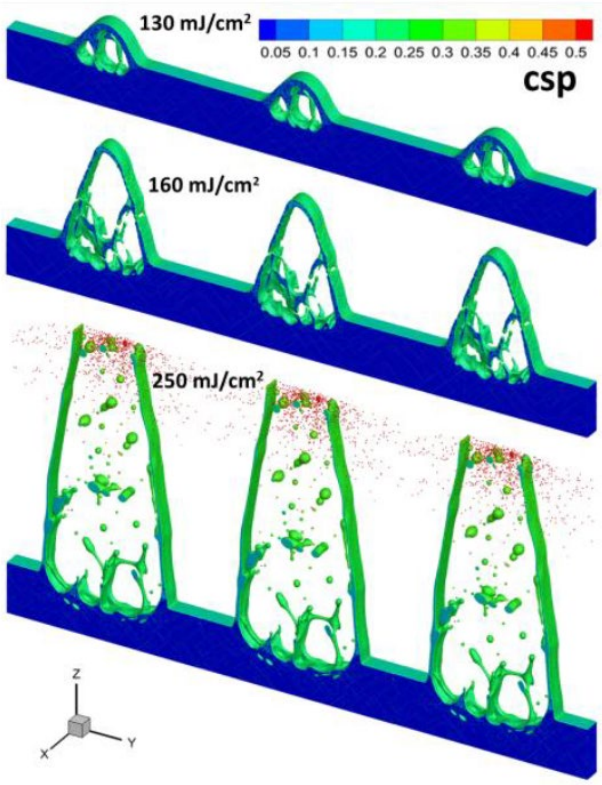
IFNANO
INSTITUT FÜR NANOPHOTONIK

Short pulses

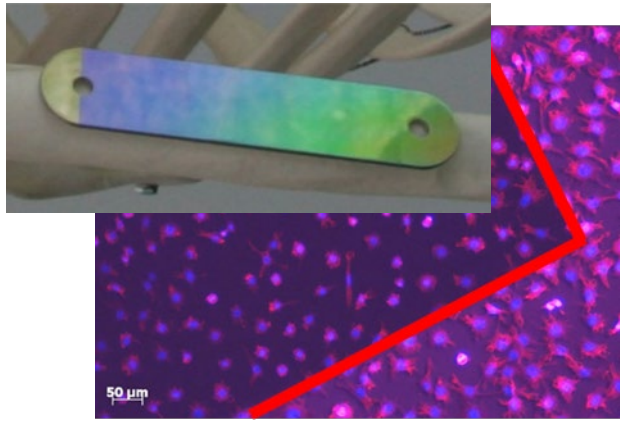




Laser induced nanostructures



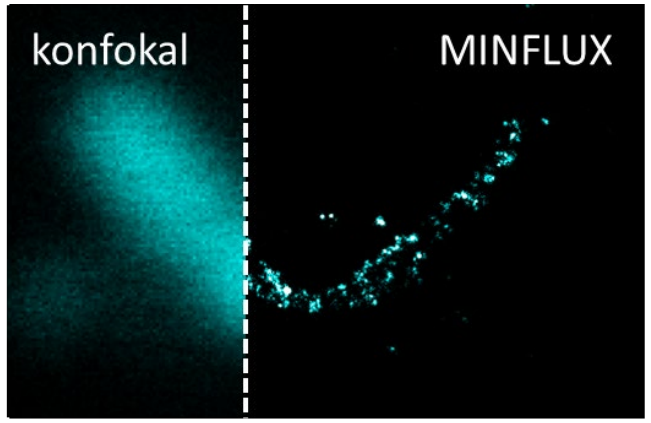
Microoptical structures

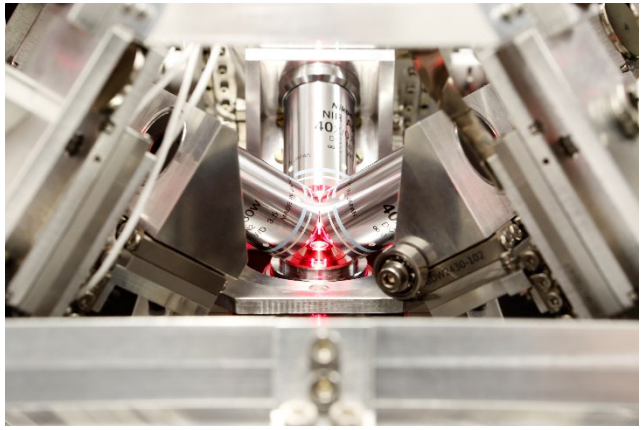


Department Optical Nanoscopy

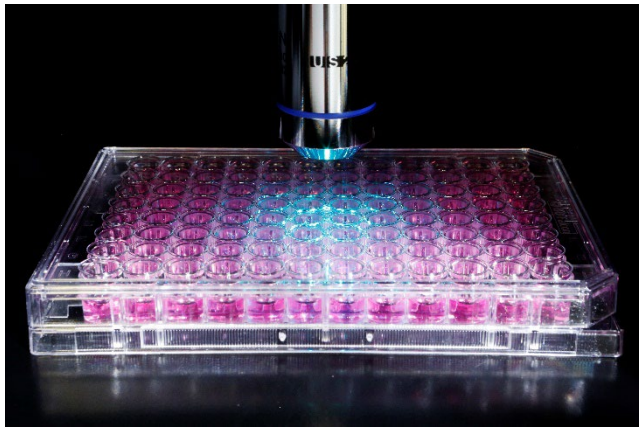
IFNANO
INSTITUT FÜR NANOPHOTONIK

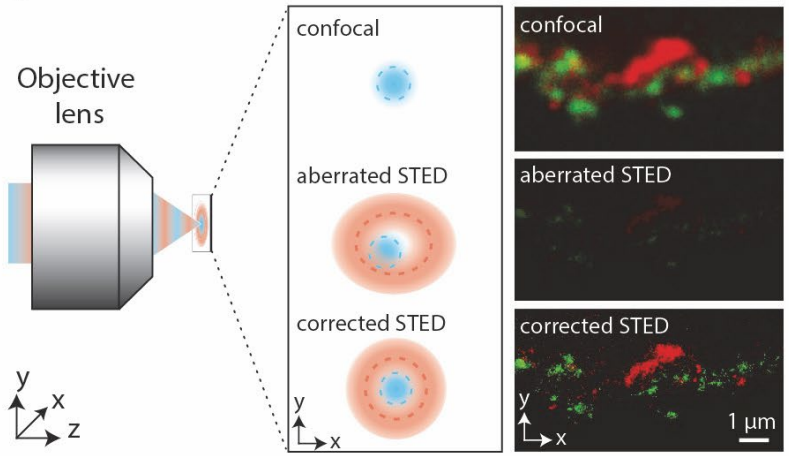
Novel imaging techniques



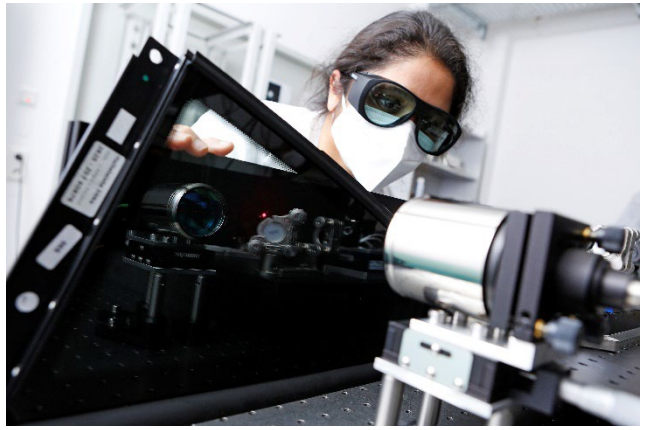


Adaption and application





Structuring and analysing

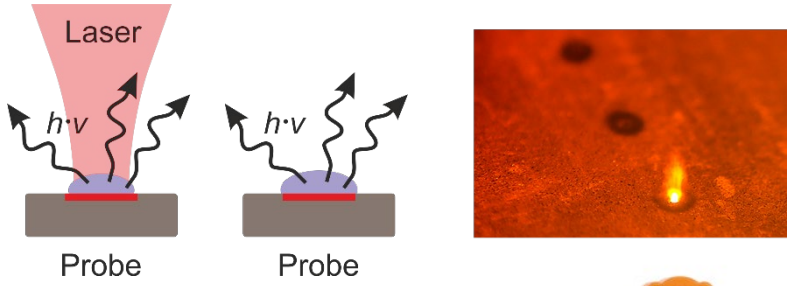


Department - Photonic sensor technology

IFNANO
INSTITUT FÜR NANOPHOTONIK

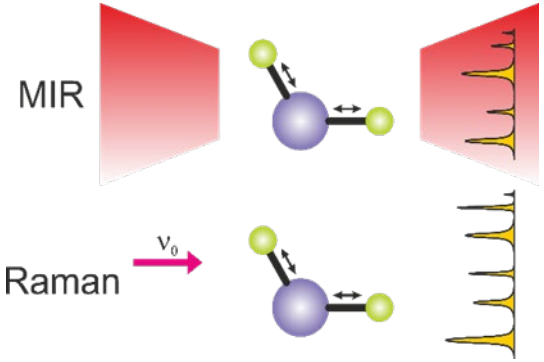
Optical spectroscopy

Laser induced breakdown spectroscopy



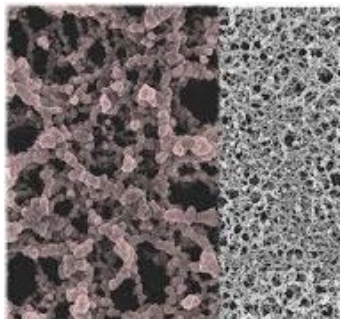
Rubber products

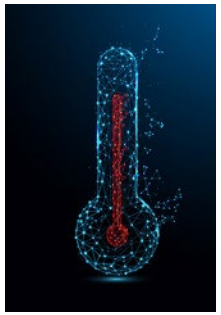
Raman and IR spectroscopy



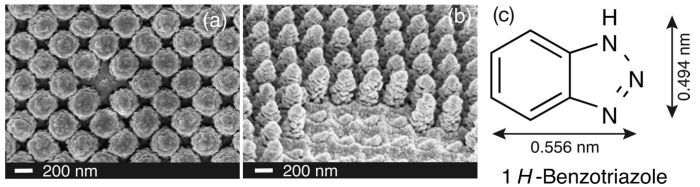
Plasmonics

Temperatur on nanostructures



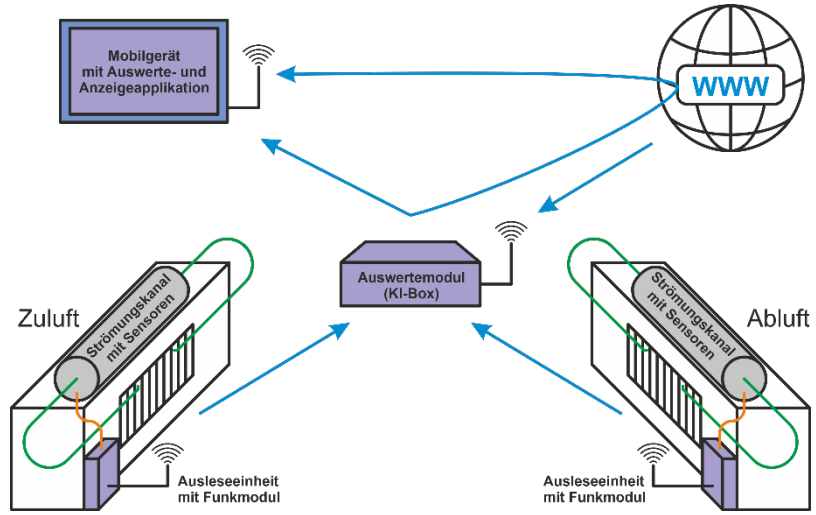


Surface enhanced Raman spectroscopy for environmental analysis



Sensor fusion & gas analysis

Smart home air quality



Damage detection for Li-ion batteries

Annual reports: https://www.ifnano.de/en/the-institute/

Department - Photonic sensor technology

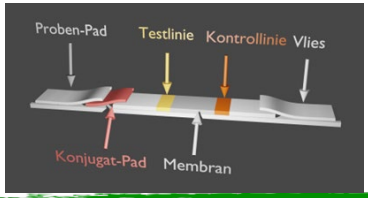
IFNANO
INSTITUT FÜR NANOPHOTONIK

Smart Factory – Process Monitoring

- Aim: Efficiency and Sustainability
- Industry 4.0 – Sensors (53% optical)
- **Development of sensors for inline analysis**

Medical Diagnostic / Life Science

- Digitisation of medicine
- **Monitoring and diagnostic**
- **Understanding molecular processes**



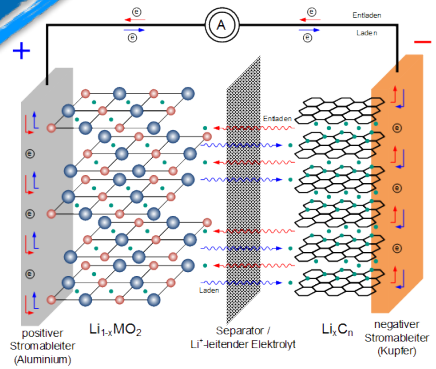
Challenges for (Photonic) Sensors

Environmental Analysis

- **Drinking water analysis**
- **Ammunition in the sea**
- **Indoor air quality**

Chemical Energy Conversion

- **Li-ion Battery**
- **Catalysis (H_2, CH_4)**
- Alternative production of commodity chemicals



Goal: Marker molecules, chemical composition


IFNANO
IFNANO
IFNANO