



Der Vorsitzende des Promotionsausschusses

EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Frau M.Sc. Indra Backes

Kolloid- und Grenzflächenchemie

(Prof. Dr. Tobias Kraus)

am

Donnerstag, 5. Juni 2025, 14:00 Uhr s.t.

per Videokonferenz: Link für MS Teams: <https://bit.ly/456li61>

Raum für die Prüfung: INM, Gebäude D2.5; Leibniz Saal

Thema der Dissertation:

Conductivity, structure and bioconjugation of gold-polythiophene hybrid nanoparticles for printed electronics

Printing enables large-scale and cost-effective production of electronic devices. This thesis deals with printable inks based on gold-polythiophene nanoparticles, a new electrically conductive hybrid material. Such inks form conductive films immediately after printing without the commonly required thermal annealing. Interactions between the gold nanoparticles and the polymer ligands are analyzed to interpret the electrical properties of dried hybrid films. The thesis focuses on the molecular binding configuration of the polythiophenes and the energy-level alignment at the gold-polymer interfaces. The results are used to create hybrid nanoparticles that are conductive and can be biofunctionalized. Their interaction with cells and enzymes was tested, and electrochemical glucose sensors were prepared by inkjet printing.

Saarbrücken, 22. Mai 2025

Prof. Dr. Uli Kazmaier