



Der Vorsitzende des Promotionsausschusses

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## EINLADUNG

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

**Herr M. Sc. Sourik Dey**

Materialsynthese und Werkstoffentwicklung  
(Prof. Dr. Aránzazu del Campo Bécares)

am

**Freitag, 20. Dezember 2024, 10:00 Uhr s.t.**

per Videokonferenz; Link für MS Teams: <https://bit.ly/4hLZX75>  
Raum für die Prüfung: Campus D2.5, INM, Leibniz-Saal, 5. Etage

### Thema der Dissertation:

#### **Engineering Probiotic Bacteria as Living Therapeutic Agents**

Living bacterial therapeutics represent an exciting frontier for achieving controlled drug release within the body. Model probiotic strains like *E. coli* Nissle 1917 have extensive genetic toolkits but still lack rapidly responsive and stringent genetic switches to regulate drug release. On the other hand, probiotic bacteria from the Lactobacilli family have broader applicability in the body but remain as non-model strains with restrictive genetic programmability. Firstly, I developed a strategy to achieve strict thermal control over the release of an enzymatically synthesized antibiotic (darobactin) from *E. coli* Nissle 1917. Secondly, I expanded the genetic toolbox of the probiotic *Lactiplantibacillus plantarum* WCFS1 strain with two genetic parts - a strong constitutive promoter ( $P_{t(pA)}$ ) and several type II toxin-antitoxin (TA)-based plasmid retention systems.

Saarbrücken, 5. Dezember 2024

Prof. Dr. Uli Kazmaier