Naturwissenschaftlich-Technische Fakultät

UNIVERSITÄT DES SAARLANDES

Der Vorsitzende des Promotionsausschusses

E I N L A D U N G

Hiermit lade ich ein zum öffentlichen Promotionskolloquium von

Herr M. Sc. Samy Aliyazdi
Wirkstofftransport
(Prof. Dr. Claus-Michael Lehr)

am

Freitag, 31. Januar 2025, 14:00 Uhr s.t.
per Videokonferenz; Link für MS Teams: http://bit.ly/3C3F7QF
Raum für die Prüfung: Gebäude E8 1 (HIPS Gebäude) im Seminar Raum im EG

Thema der Dissertation:

3D Printing for the Development of Complex *In Vitro* Models to Investigate Nanoantibiotics against Bacterial Infections

3D (bio)printing is a cutting-edge technology that enables precise fabrication of in vitro models, providing a promising alternative to animal testing in infection research, where suitable models remain limited. By replicating in vivo conditions, these models improve the predictive accuracy of drug efficacy for clinical applications. This dissertation explores 3D (bio)printing for infection research, focusing on two key applications. First, a model of chronic lung infections was developed by bioprinting *E. coli* MG1655 biofilms onto human lung epithelial cells using a gelatin-alginate bioink, enabling controlled deposition while maintaining their structural integrity and biofilmic properties. Second, 3D printing was applied to a human hair follicle infection model, enabling controlled *Staphylococcus aureus* infections and targeted treatment with nanoencapsulated antibiotics. These findings highlight the potential of 3D (bio)printing to improve infection modelling, enhance reproducibility, and accelerate therapeutic development.

Saarbrücken, 23. Januar 2025

Prof. Dr. Uli Kazmaier