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FAU MoD Lecture Series

A data-driven approach to closed-loop control of wound state progression to drive healing outcomes

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WHEN
Monday **May 04, 2026**
11:00H (Berlin time)

WHERE
On-site / Online

Friedrich-Alexander-Universität
Erlangen-Nürnberg (FAU).
Room **H13 Johann-Radon-Hörsaal**
Felix-Klein building
Cauerstraße 11, 91058
Erlangen. Bavaria, Germany

Live-streaming:
https://www.fau.tv/clip/id/59621

The advancement of technology in bioelectronic sensors and actuators provides a platform for automating custom treatment strategies through feedback control. If we consider the response of an individual to a treatment regimen as a dynamical system, we can deploy adaptive strategies with real-time learning to optimize prescribed treatments. Here, we discuss work in wound healing. We argue that timing of treatments is as critical to consider as the choice of drug or therapy. Due to system size and complexity, data-driven methods need to be explored to develop multi-dimensional quantifiable indicators tracking systemic changes. Open challenges we address include developing data-driven models suitable for relatively small datasets that are temporally sparse and noisy. Thus, there is a need to develop methods that work with small training datasets and that can be updated in real-time with incoming data. This allows the model to be fine-tuned to the individual of study. In this work I discuss our approach to enhancing bioelectronic devices with deep learning to help facilitate real-time sensing and actuation for automated decisions in treatment to accelerate wound closure.