


Chemnitz Seminar
September 2 – 3, 2025

Sensor Systems for One Health





Sensor Systems for One Health – Welcome!

Dr. Mario Baum
Fraunhofer ENAS
Health Systems

43rd Chemnitzer Seminar "One Health"
Chemnitz, 2nd & 3rd September 2025

Welcome to Chemnitz

Home of Fraunhofer ENAS and European Capital of Culture in 2025



Fraunhofer Institute for Electronic Nano Systems ENAS

At a glance



Around **250 experts** along the **entire value chain** of intelligent systems



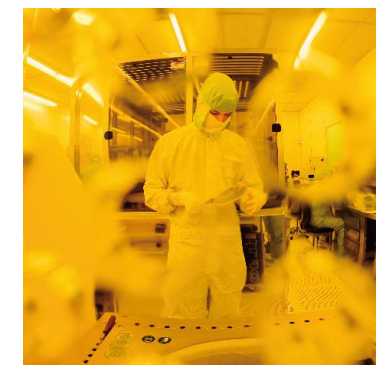
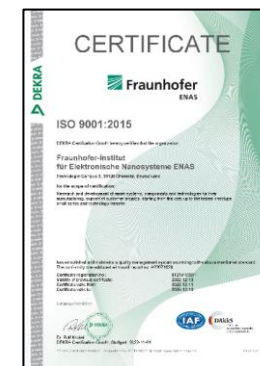
Leading edge equipment for wafer, package as well as for characterization, test and reliability



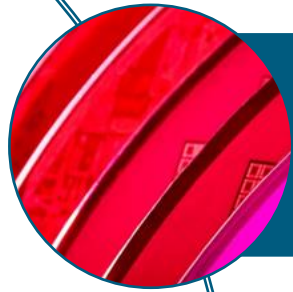
218 patents in 70 families
ISO 9001:2015 **certified**



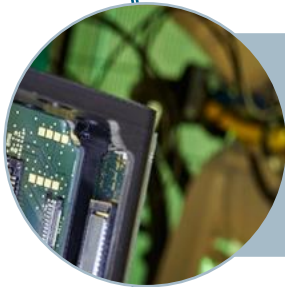
Strong Cooperation **Fraunhofer ENAS** and **Chemnitz University of Technology** (ZfM, SSI)
Fraunhofer ENAS is part of **FMD**



Fraunhofer ENAS - Value chain



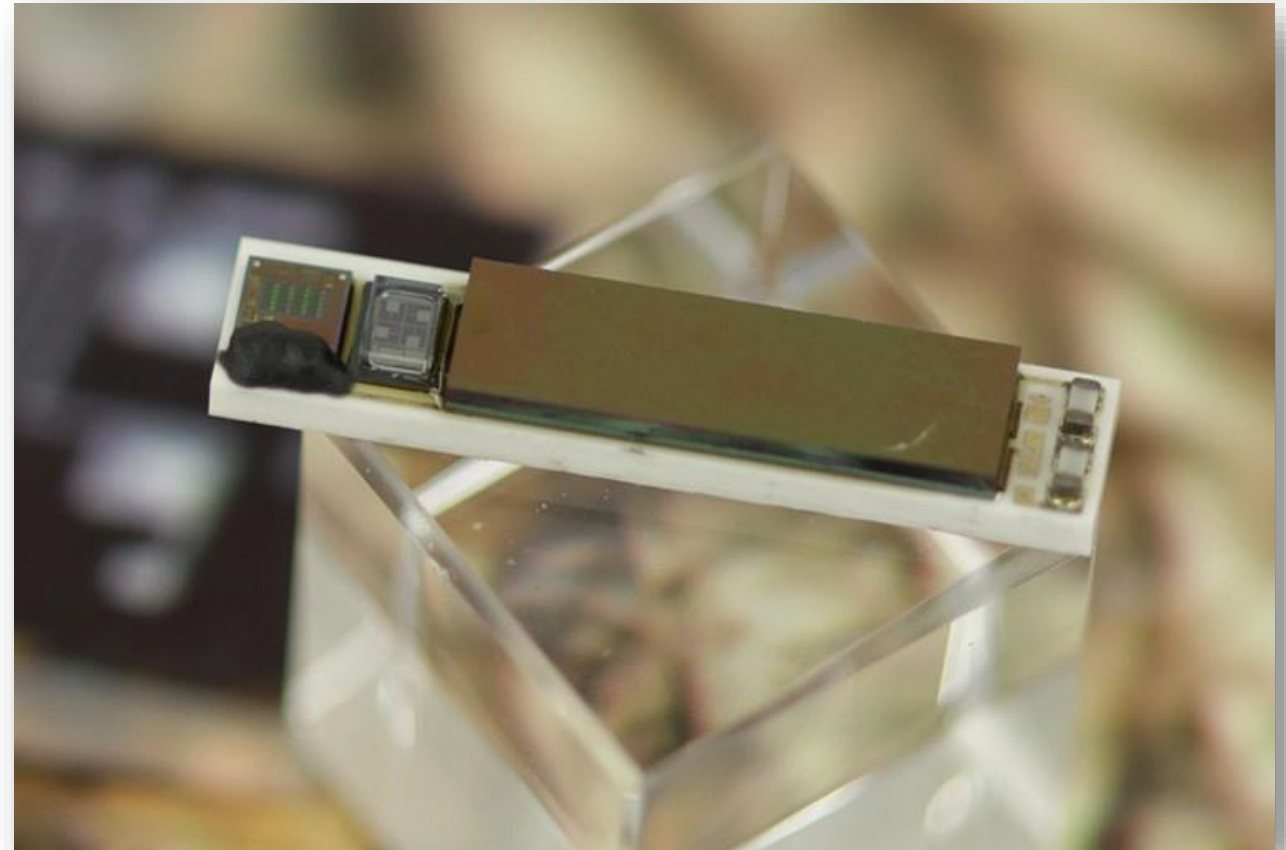
Process, Device and Packaging Technologies



Smart Systems



Test and Reliability Solutions



A holistic approach to global health:

How the well-being of people and nature keeps our world in balance

The concept “One Health” describes the interactions and interdependencies between and among the elements of the various ecosystems found on our planet, where animals, humans and plants live closely together in harmonious balance.

We focus on monitoring systems based on sensors and actuators, so called smart systems for:

- Human medical & consumer technology
- Animal welfare and food safety
- Environmental Health

Keeping global health
in balance with smart
sensor solutions



Department Health Systems

Facts & Figures



Established on 1st January 2024 by the unification of **Fluidic Integration** group (MDI) and **Systems Engineering**



Leading edge equipment for prototyping, micro fluidics and X-Ray analysis, Ultrasound diagnostics, ...



9 scientific staff members and technicians, up to **10** students in different projects and topics



Strong Cooperation **Fraunhofer ENAS** and **Chemnitz University of Technology** (MAIN, ZfM, SSI) and **Klinikum Chemnitz gGmbH**



Sensor and Actuator Systems for One Health

Working Fields in Health related Research and Development at Fraunhofer ENAS

Regulatory Issues for Research and Development

Implant
Technologies

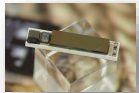
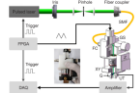
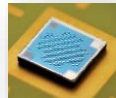


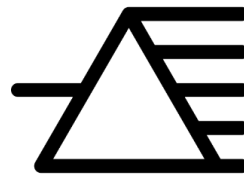
Photo-
acoustic
Imaging



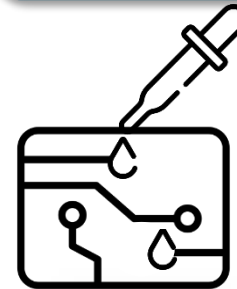
Ultrasound
&
Wearables



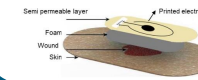
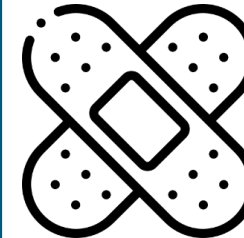
Optics &
Spectro-
scopy



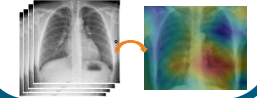
Micro-
fluidics



Wound &
Sensor
Patches



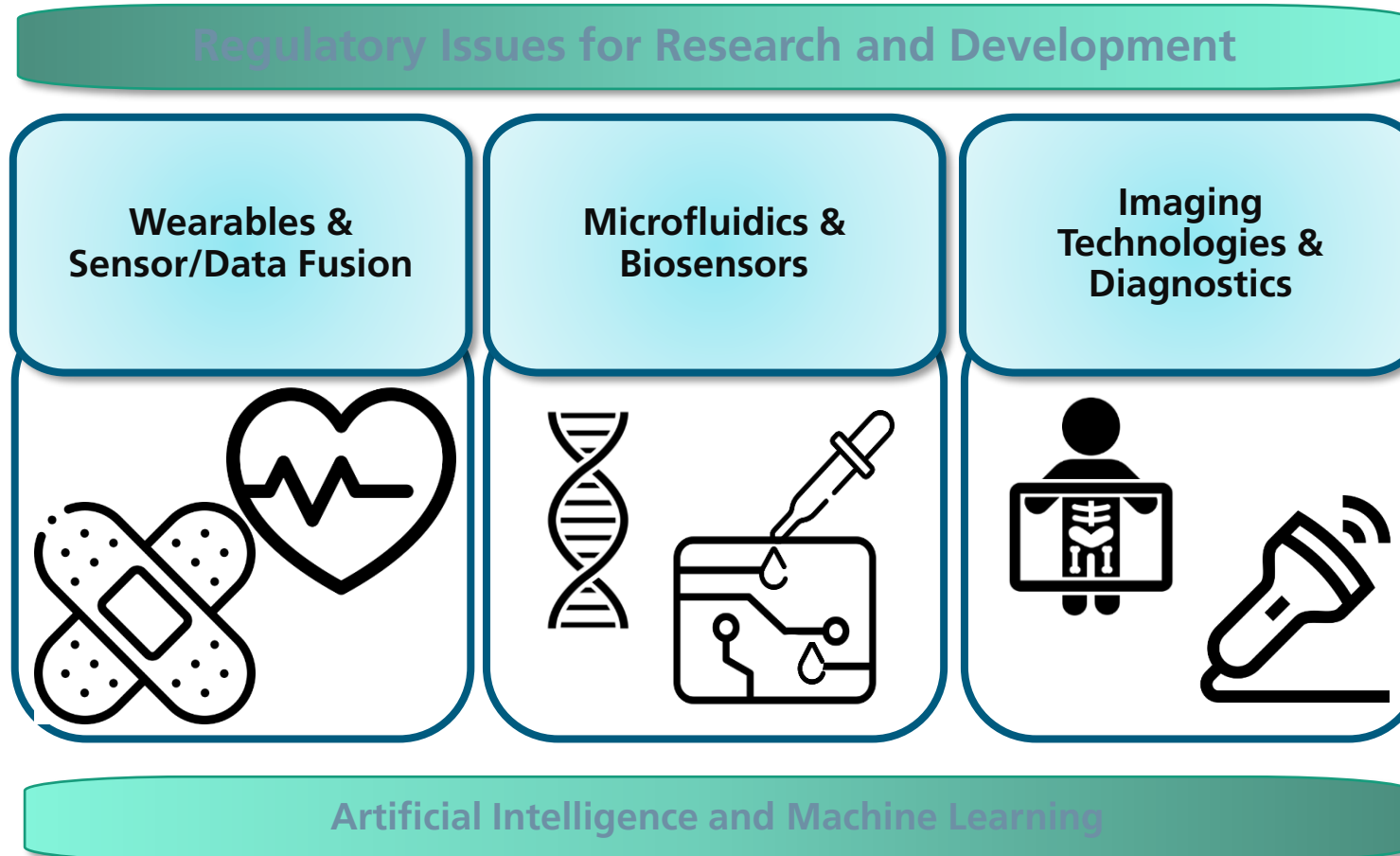
Mobile and
spectral
X-Ray



Artificial Intelligence and Machine Learning

Sensor and Actuator Systems for One Health

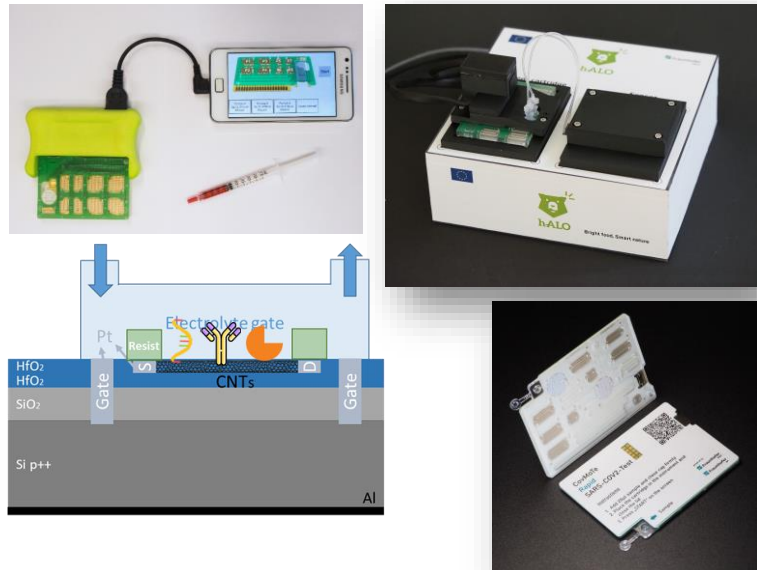
Working Fields in Health related Research and Development at Health Systems Department



Focus for Health Systems

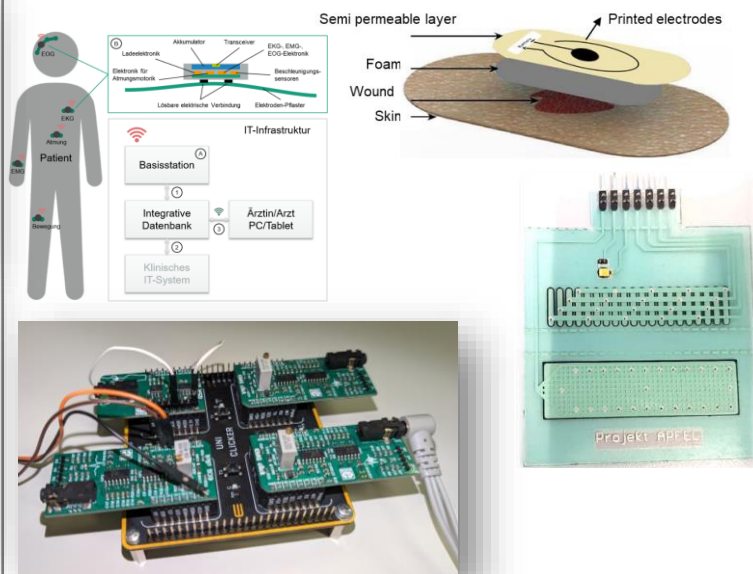
3 Main Topics based on Competencies and scientific Experiences

Mikrofluidics & Biosensors



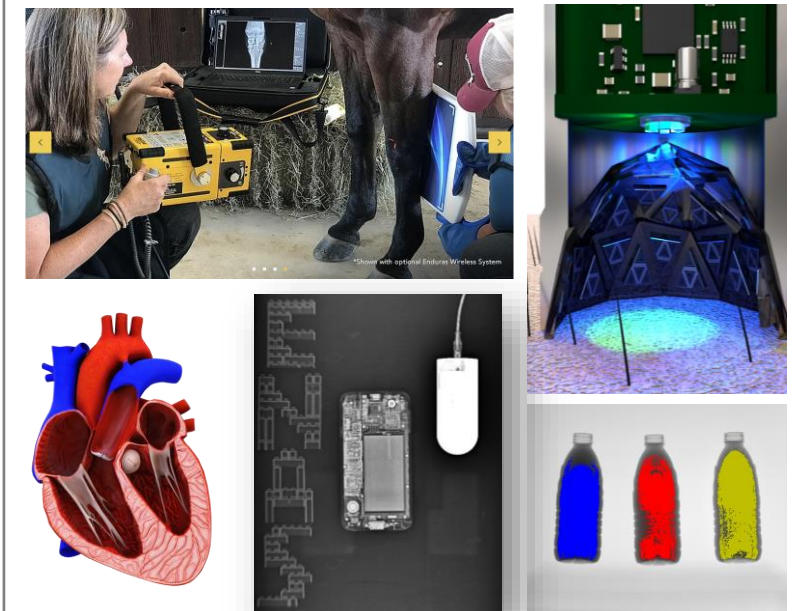
- Development services for scaling up the production of microfluidic systems,
- Optimization of assays for microfluidic systems, reagent storage and assay development.

Wearables & Sensor/Data Fusion



- Development services for close-to-body multimodal sensor technology for diagnostic applications on humans and animals, from skin contact to data transmission

Imaging Diagnostics



- Development services for the integration of microtechnological components and subsystems for miniaturized imaging processes

Das Fraunhofer ENAS ist ein Teil der



**Forschungsfabrik
Mikroelektronik**
Deutschland

Fraunhofer-Verbund Mikroelektronik in Kooperation mit
Leibniz FBH und IHP

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Further Information and Program of the Year:

[Chemnitz 2025: Kulturhauptstadt Europas](#)