



University  
of Basel

Department of  
Biomedical Engineering



# 11<sup>th</sup> DBE Research Day

The Department of Biomedical Engineering:  
Innovative Research from Bench to Bedside



Friday, 5 September 2025  
Biozentrum, University of Basel  
Spitalstrasse 41, CH 4056 Basel  
Register now: [dbe-events.dbe.unibas.ch](https://dbe-events.dbe.unibas.ch)

# Dear Guests and Colleagues

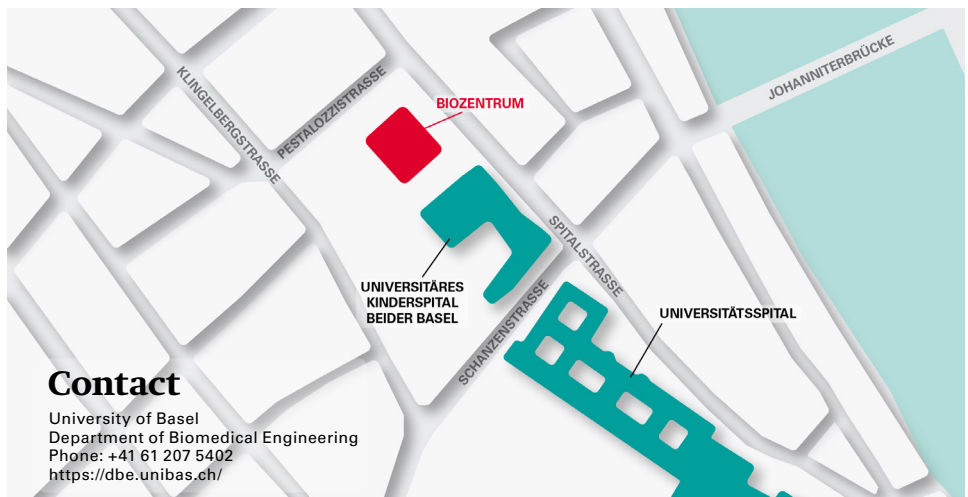
Last year marked the 10<sup>th</sup> anniversary of the Department of Biomedical Engineering. Over the past decade, with a clear mission to bridge the gap between laboratory research and clinical application, the department has experienced a remarkable growth.

By fostering a culture of innovation and aligning our research efforts with clinical needs, we built up a strong reputation that continues to attract clinicians, researchers, students alike. Their contributions have been instrumental in helping us realize our vision.

Looking ahead, the next decade holds great promise. Our goal is to further establish the DBE as a leading hub for innovation in medical and clinical technology.

It is therefore with great pleasure that we welcome you to the 11<sup>th</sup> DBE Research Day, a celebration of bold ideas and collaborative spirit that will propel us into the future!

Prof. Philippe Cattin  
Department Head



# Agenda

## 5 September 2025

<b>8.45 Welcome to the 11<sup>th</sup> DBE Research Day by Prof. Eva Scheurer</b>		
<b>8.55 Session 1: Evaluated Group: CIAN   Chair: Prof. Florian Thieringer</b>		
9.00	Prof. Philippe Cattin	Where AI&VR Supports Medical Doctors
9.10	Prof. Raphael Guzman	VR in Vascular Neurosurgery
9.20	Dr. Florentin Bieder	Challenges and Innovations: Image Analysis in the Machine Learning Era
9.30	Paul Friedrich & Susanne Schaub	From Synthesis to Solutions: The Expanding Role of 3D Diffusion in Medical AI
9.40	Dr. Sidaty El Hadramy	Computer-Assisted Training, Planning, and Navigation for Diverse Surgical Interventions
9.50	Oumeymah Cherkaoui & Massimiliano Filipozzi	GPS for the Human body: Straight to the Point!
<b>10.00 Poster Session &amp; Coffee Break</b>		
<b>12.00 Session 2: Evaluated Group: SinuesLab   Chair: Dr. Ferda Canbaz</b>		
12.00	Prof. Pablo Sinues	From Exhalation to Explanation: Integrating Breath Metabolomics and Mass Spectrometry for Diagnosis and Therapeutic Monitoring
12.15	Prof. Urs Frey	Why Children Aren't Just Smaller Grown-Ups: Embracing Personalized Pediatric Medicine
12.25	Britta Brugger	Breath Analysis for Clinical Applications: Respiratory Infection Diagnosis and Therapeutic Drug Monitoring Post-Lung Transplant
12.30	Zhihong Yin	Applications of Breath Analysis: From Isotopic Tracer Development to Antibiotic Therapeutic Drug Monitoring
12:35	Mélina Richard	Pain Induces a Rapid Characteristic Metabolic Signature Detectable in Breath

<b>12.45 Lunch Break</b>		
<b>14.00 Session 3: Translation in Action   Chair: Prof. Cristina Granziera</b>		
14.00	Prof. Ece Özkan Elsen	From Data to Decisions: Computational Models for Personalized Pediatric Care
14.15	PD Dr. Joël Lavanchy	Leveraging Deep Learning for Surgical Data Science
14.30	Dr. Timo Tondelli	Knee Orthopaedics Research: Bridging Molecular Biology, Functional Biomechanics, and Patient-Reported Outcomes
<b>14.45 Break</b>		
<b>15.00 Session 4: Alumni Tandems   Chair: Dr. Simon Herger</b>		
15.00	Prof. Manuela Eugster & Esther Zoller	Beyond the DBE: two journeys, one foundation
15.05	Mahyar Joodaki & Dr. Alois Hopf	Personalised Neurostimulation: Translating Computational Precision into At-Home Therapy
15.20	Dr. Tim Wölfle & Dr. Felix Widmer	Digital biomarkers for mobility assessment of people with multiple sclerosis
15.35	Dr. Eva Schnider & Hélène Corbaz	Mind the Gap
<b>15.50 Award Ceremony</b>		
<b>16.05 Closing Remarks by Prof. Georg Rauter</b>		
<b>16.20 Apéro</b>		