



University  
of Basel

Department of  
Biomedical Engineering



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

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



Wednesday, 21 August 2024  
Biozentrum, University of Basel  
Spitalstrasse 41, CH 4056 Basel  
Register now: [dbe-events.dbe.unibas.ch](https://dbe-events.dbe.unibas.ch)

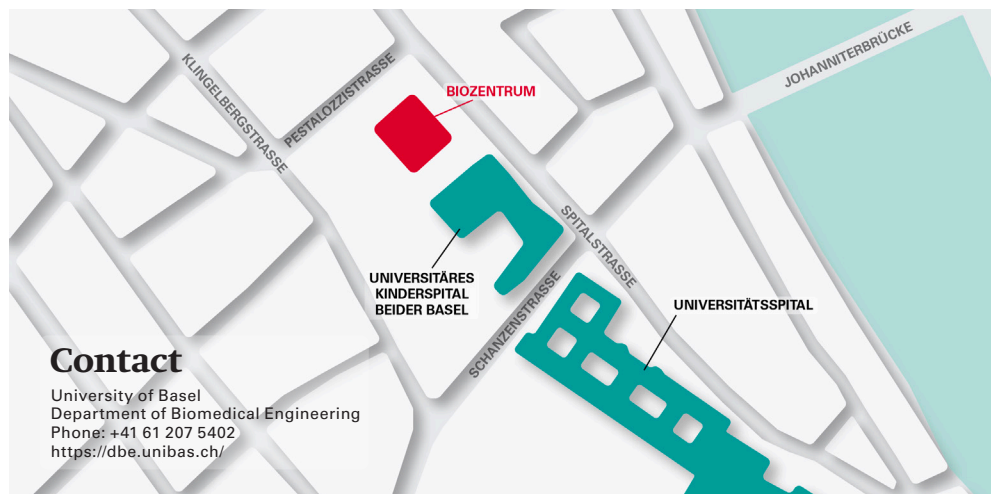
# Dear Guests and Colleagues

At the DBE we claim to bridge the gap between medicine and engineering. But is there actually a gap? The oldest evidence of surgery from the stone age proves the use of stone tools. And ever since, until today, medicine and technology remain closely linked, think for example of prostheses, stethoscopes, thermometers etc. So is there a gap at all?

Yes, there is. It is being created – and widened – by the specialization that comes with the ever growing corpus of knowledge in medicine and engineering. Today, no human being is able to oversee both fields in their entirety, let alone newest results and developments. This creates a gap between disciplines, and what it takes to bridge it is first and foremost: communication. The game has changed from a single player competition to a team sport, which is why the discipline and the Department of Biomedical Engineering have been established in the first place. Their success relies on our ability to connect people, perspectives, ideas, problems, solutions, technologies and institutions. The DBE Research Day is our most important event to promote exactly this.

In 2024, we are celebrating our 10<sup>th</sup> Research Day, the very first significant birthday of the youngest of all Departments at the University of Basel. You are cordially invited – this year to the Biozentrum – to participate in the exchange and celebrate our anniversary with an apéro on 21 August 2024.

Prof. Philippe Cattin  
Department Head



# Agenda

21 August 2024

<b>8.45</b>	<b>Prof. Philippe Cattin &amp; Prof. Beat Müller</b>	<b>Welcome to the DBE Research Day</b>
<b>9.00</b>	<b>Session 1</b>	<b>Chair: PD Dr. Daniel Studer</b>
9.00	Prof. Anne Mündermann	Introduction to CADENCE
9.05	PD Dr. Cordula Netzer	Translating Biomechanical Insights into Clinical Strategies for Enhanced Patient Treatment
9.15	David Koch	Exploring Lumbar Spinal Stenosis: Understanding Biomechanical, Radiological, and Physiological Interrelationships
9.30	Prof. Elke Viehweger	From the Gait Laboratory to the 21 <sup>st</sup> Century Clinical Research Centre of Motion Analysis In Neuroorthopaedics
9.45	Regine Zibold	Beyond Boundaries: Harnessing VR to Support Management in Cerebral Palsy
<b>10.00</b>	<b>Poster Session &amp; Coffee Break</b>	
<b>11.30</b>	<b>Session 2</b>	<b>Chair: Prof. Andreas Müller</b>
11.30		RDX CADENCE
11.35	Prof. Georg Rauter	Including Humans, Robots, and Real-Time Machine Learning in the Loop
11.50	Prof. Anne Mündermann	Advancing Orthopaedic Research: Enhancing Patient Care through Biomedical Engineering Innovation
12.05	Dr. Linda Bühl	Augmenting Patient-Reported and Clinical Outcomes with Biomechanical Insights to Advance ACL Injury Treatment
12.20	PD Dr. Morgan Sangeux	Statistical and Musculoskeletal Models to Inform Clinical Decisions
<b>12.35</b>	<b>Poster Session &amp; Lunch Break</b>	

<b>13.50</b>	<b>Session 3</b>	<b>Chair: Prof. Arnaud Scherberich</b>
13.50		RDX Microcalorimetry
13.55	Dr. med. Annette Mettler	Codifying Complexities of Emergencies
14.00	Alvaro Gonzalez Jimenez	AI in Dermatology with Noisy and Limited Data
14.05	Dr. Ferda Canbaz	Enhancing Biomedical Optics: Benefits of Cross-Field Innovations Through Diverse Projects
14.20	Dr. Claudia Lenz	The Role of Tissue Anisotropy in Quantitative MRI of the Human Brain
<b>14.35</b>	<b>Break</b>	
<b>14.50</b>	<b>Session 4</b>	<b>Chair: Dr. Claudia Weidensteiner</b>
14.50		RDX Swiss MAM
14.55	Dr. Janine Schulte	A Multidisciplinary Approach - the Potential of Pharmacogenetics in Forensic Science
15.00	Arnaud Champetier	A Feasible Machine Learning Approach to Diagnose Non-ST-Segment Elevation Myocardial Infarction
15.05	PD Dr. Francesco Santini	These Legs are Made for Walking: MR Imaging of the Skeletal Muscle Beyond its Structure
15.20	Dr. Valentina Basoli	Regenerative Medicine: Integrating Tissue Engineering, 3D Printing, and Biosensors for Point-of-Care
15.35		RDX MiNa
<b>15.40</b>	<b>Award Ceremony</b>	<b>Chair: Prof. Pablo Sinues</b>
<b>15.55</b>	<b>Dr. Ferda Canbaz</b>	<b>Closing Remarks</b>
<b>16.05</b>	<b>H. F. Zeilhofer opens the Celebration of the 10<sup>th</sup> DBE Research Day</b>	