

LOCATION

Hotel Goldener Stern |
Marktplatz 6 | 91346 Muggendorf |



For the transfer to and from Hotel Goldener Stern a rented coach is available for registered participants:

Departure on **October 9, 2024 at 7:45 a.m.**
at Cauerstraße, Erlangen

Departure on **October 10, 2024 at 4:15 p.m.**
at Hotel Goldener Stern, Muggendorf



Please register online at:
<https://go.fau.de/1c-ch>
by **July 28, 2025**, at the latest.

CONTACT

Spokesperson of CRC 1540 EBM
Prof. Dr.-Ing. Paul Steinmann
Institute of Applied Mechanics
Department of Mechanical Engineering
Egerlandstraße 5, 91058 Erlangen
Phone: +49 9131 85 28502
✉ paul.steinmann@fau.de

Co-Spokesperson of CRC 1540 EBM
Prof. Dr.-Ing. Silvia Budday
Institute of Continuum Mechanics and Biomechanics
Department of Mechanical Engineering
Egerlandstraße 5, 91058 Erlangen
Phone: +49 9131 85 67611
✉ silvia.budday@fau.de

Coordination of CRC 1540 EBM
Dr. rer. nat. Andrea Dakkouri-Baldauf
Martensstraße 5a, 91058 Erlangen
Phone: +49 9131 85 20782
✉ andrea.dakkouri@fau.de

Administration of CRC 1540 EBM
Doris Bittner
Martensstraße 5a, 91058 Erlangen
Phone: +49 9131 85 20782
✉ doris.bittner@fau.de

Follow us on



Friedrich-Alexander-Universität
Erlangen-Nürnberg

Collaborative Research Center
CRC 1540

Exploring Brain Mechanics

3rd EBM Retreat

October 9 - 10, 2025

Hotel Goldener Stern
Muggendorf



Thursday, October 9, 2025

09:15 - 10:00 **EBM^2** Paul Steinmann / Silvia Budday

10:00 - 11:30 **GA** Paul Steinmann / Silvia Budday

11:30 - 12:00 **Coffee break**

12:00 - 12:05 **B01** Oskar Neumann / Rahul Gopalan Ramachandran

In silico modeling of spinal cord regeneration

12:05 - 12:15 **B01** Paul Steinmann / Silvia Budday

In silico modelling of CNS regeneration

12:15 - 12:20 **B02** Maria Tarczewska

Pre and post metamorphosis spinal cord regeneration in frogs

12:20 - 12:30 **B02** Kristian Franze

Pre and post-metamorphosis spinal cord regeneration in frogs

12:30 - 12:35 **B03** Jana Bachir Salvador

The determinants of spinal cord mechanics in homeostasis

12:35 - 12:40 **B04** Maik Hintze

Spinal cord mechanics in a mouse model of multiple sclerosis

12:40 - 12:50 **B04** Stefanie Kürten / Veit Rothhammer

Interplay between mechanosensation and glial scar formation in MS

12:50 - 12:55 **B05** Thomas Fleming

In vivo mechanical manipulation of spinal cord regeneration

12:55 - 13:05 **B05** Daniel Wehner

In vivo mechanical control of fibroblasts in spinal cord regeneration

13:05 - 13:15 **B06** Danijela Gregurec

Neuronal regeneration through targeted mechanical stimulation

13:15 - 14:45 **Lunch break**

14:45 - 14:50 **C01** Soheil Firooz / Mathar Kravikass

In silico modelling of mechanical cell-matrix interactions

14:50 - 15:00 **C01** Vasily Zaburdaev / Paul Steinmann

In silico modelling of mechanical cell-matrix interactions

15:00 - 15:05 **C02** Ezgi Erterek

The role of mechanics for neuronal 'plasticity'

15:05 - 15:10 **C03** Kristina Karandasheva

The role of mechanics in synchronized neuronal activity

Thursday, October 9, 2025

15:10 - 15:20 **C03** Katja Kobow

The role of mechanics in synchronized neuronal activity

15:20 - 15:25 **C04** Shanice Heidenreich

Cellular differentiation in brain tissue-like matrices

15:25 - 15:30 **C05** Lars Bischof

Molecular mechanisms of neuronal mechanotransduction

15:30 - 15:40 **C05** Ben Fabry

Molecular mechanisms of neuronal mechanotransduction

15:40 - 15:50 **C06** Tomohisa Toda

The role of nuclear mechanics in adult neurogenesis

15:50 - 16:00 **C07** Henrik Heiland

Mechanics of brain tumor invasion

16:00 - 18:30 **Team building with coffee**

18:30 - 20:00 **Dinner**

Friday, October 10, 2025

08:00 - 09:30 **Breakfast and check-out**

09:30 - 09:40 **X01** Laura Ruhland / Yashasvi Verma / Jakob Ludwig

Model-based reconciliation of ex vivo and in vivo test data

09:40 - 09:45 **Y** Guillaume Flé

Establishing magnetic resonance elastography at FAU

09:45 - 10:00 **X01** Guillaume Flé / Paul Steinmann / Ingolf Sack / Jing Guo

Model-enhanced MR and US elastography improvement

10:00 - 10:05 **X02** Oliver Aust

Data analysis and machine learning for heterogeneous, cross-species data

10:05 - 10:15 **X02** Katharina Breininger

Machine learning for multi-modal data

10:15 - 10:20 **X03** Markus Lorke

Engineering brain tissue-like matrices

10:20 - 10:30 **X03** Aldo Boccaccini / Irem Ünalan

Engineering brain-tissue-like matrices

10:30 - 11:00 **Coffee break**

Friday, October 10, 2025

11:00 - 11:05 **A01** Jan Hinrichsen

In silico modeling of brain malformations

11:05 - 11:10 **A02** Erica Cecchini / Sophia Auer

Quantitative characterization of brain malformations

11:10 - 11:20 **A01** Silvia Budday / Ingmar Blümcke

In silico modelling of brain malformations

11:20 - 11:25 **A04** Michael Tranchina

The role of mechanics in orchestrating neural lineage decisions

11:25 - 11:35 **A04** Marisa Karow / Sven Falk

The role of mechanics in modulating neurodevelopmental diseases

11:35 - 11:40 **A03** Clara Froidevaux

In vitro model for the mechanics of early brain development

11:40 - 11:45 **A05** Sebastián Ignacio Vásquez Sepúlveda

In vivo model for the mechanics of brain development

11:45 - 11:55 **A05** Kristian Franze / Alexandra Schambony

In vivo model for the mechanics of brain development

11:55 - 12:05 **A07** Jana Hutter

In utero mechanics of the developing CNS

12:05 - 12:15 **A08** Chichung Lie

Impact of membrane mechanics on stem cell activity and function in the developing brain

12:15 - 13:45 **Lunch break**

13:45 - 13:50 **A02** Stefan Rampp

Quantitative characterization of brain malformations

13:50 - 14:00 **T01** Arnd Dörfler / Frederik Laun

Pre-operative mechanics of brain tissue

14:00 - 14:15 **T02** Daniel Delev / Silvia Budday / Lucas Hoffmann

Intra- and post-operative mechanics of brain tissue

14:15 - 14:25 **T03** Franziska Mathis-Ullrich

Mechanical robotic assistant for neurosurgery

14:25 - 14:35 **S01** Friedrich Paulsen

Ultrastructural and 3D representation of brain tissue

14:35 - 15:05 **Coffee break**

15:05 - 16:00 **Final discussion** Paul Steinmann / Silvia Budday