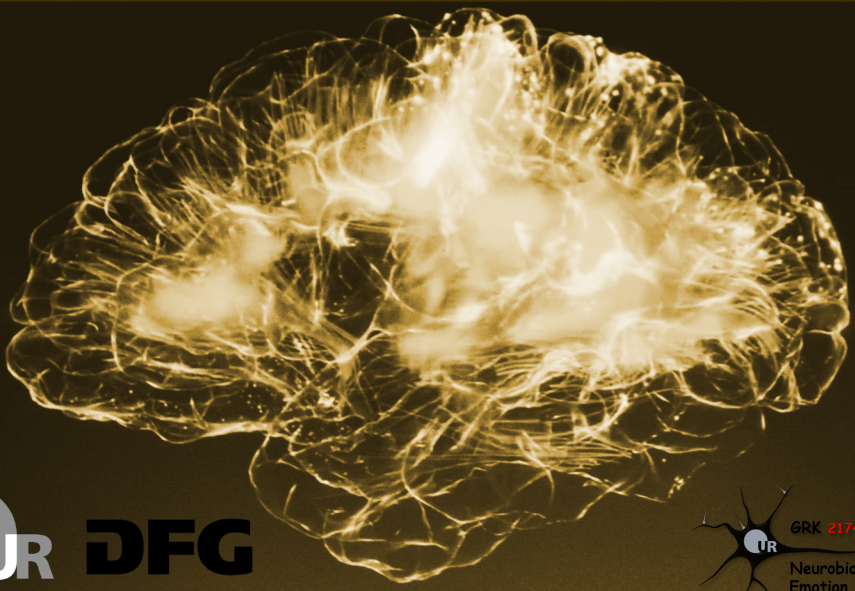
GRK SUMMER SCHOOL 2022



Universität Regensburg

GRK 2174
Neurobiology of Emotion Dysfunctions

GRK 2174

Neuroscience Graduate Program

Neurobiology of Emotions Dysfunctions

Who are we

We are an international group of young scientists who share the common passion for curiosity and mystery of life.

We never stop questioning!

What's our aim

In our projects we aim to get deeper knowledge of emotions dysfunctions by using different approaches, which go from cellular/molecular level to the use of animal models and human patients, leading to a high translational potential to our research.

Guest Speakers

Prof. Dr. Gunter Meister

University of Regensburg

Dr. Simon Chang

MPI of Psychiatry
Munich

Prof. Dr. Katja Bertsch

LMU Munich

Prof. Dr. Mazahir T. Hasan

Achucarro Basque Center for Neuroscience Bilbao

Prof. Dr. Tatiana Korotkova

University of Cologne

Keynote Speakers

Prof. Dr. Sheena Josselyn

University of Toronto

Prof. Dr. Uri Manor

Salk Institute for Biological Studies

Prof. Dr. Gulcin Pekkurnaz

UC San Diego

Program

Monday April 4

09:00- 10:00	***Prof. Dr. Christian Wetzel** - Method Course Introduction*
10:00- 10:50	***Student Talks** - Leopold Kinzel, Atefeh Akbari, Nadia Falhani, Iseline Cardon*
10:50- 11:05	*Coffee Break*
11:05- 12:00	***Prof. Dr. Mazahir T. Hasan** - Guest Speaker (virtually)*
12:00- 13:00	*Lunch Break*
13:00- 17:00	***Method Course- Electrophysiology***
17:00- 18:00	***Prof. Dr. Sheena Josselyn** (virtually) - Keynote Lecture*

Tuesday April 5

09:00- 10:0	***Prof. Dr. Eugen Kerkhoff** - Method Course Introduction*
10:00- 10:50	***Dr. Simon Chang** - Guest Speaker*
10:50- 11:05	*Coffee Break*
11:05- 12:00	***Prof. Dr. Katja Bertsch** - Guest speaker*
12:00- 13:00	*Lunch Break*
13:00- 17:00	***Method Course- Fluorescence microscopy***

Program

Wednesday April 6

09:00- 10:00	***Prof. Dr. Oliver Bosch and Dr. Rohit Menon** - Method Course Introduction*
10:00- 10:50	***Student talk -** Eugenia Vivi, Philipp Seidl, Anna Huber*
10:50- 11:05	*Coffee Break*
11:05- 12:00	***Prof. Dr. Gunter Meister** - Guest Speaker*
12:00- 13:00	*Lunch Break*
13:00- 17:00	***Method Course- Animal Behaviour***
17:00- 18:00	*Coffee Break*
18:00- 18:50	***Prof. Dr. Uri Manor** - (virtually) - Keynote Lecture*

Thursday April 7

09:00- 10:00	***Prof. Dr. Jens Schwarzbach** - Method Course Introduction*
10:00- 10:50	***Student Talks -** Theresa Suess, Luisa Demarchi, Laura Boi*
10:50- 11:05	*Coffee Break*
11:05- 12:00	***Prof. Dr. Tatiana Korotkova** - Guest Speaker*
12:00- 13:00	*Lunch Break*
13:00- 17:00	***Method Course- MRI***
17:00- 18:00	***Prof. Dr. Gulcin Pekkurnaz** (virtually) - Keynote Lecture*

Program

Friday April 8

09:00- 10:00	***PD. Dr. Barbara di Benedetto**- Method Course Introduction*
10:00- 11:50	***Method Course- Cell Culture***
11:50- 12:05	*Coffee Break*
12:05- 14:00	***Method Course- Cell Culture***

Virtual lecture link zoom:

https://uni-regensburg.zoom.us/j/65022326361

Room:

Monday, 04.04 - seminar room DE 2.133

Tuesday, 05.04 - seminar room DE 2.133

Wednesday, 06.04 - seminar room DE 1.113

Thursday, 07.04 - seminar room DE 2.133

Friday, 08.04 - seminar room DE 3. 270

Workshops

Prof. Dr. Christian Wetzel

Electrophysiology method course

We will use iPSC-derived neurons which were reprogrammed from human skin fibroblasts. These neurons reside in special culture dishes, suitable for visual inspection by using the differential interference contrast (DIC) method. This method allows a beautiful 3D inspection of soma and neurotes. We will pull patch pipettes from borosilicate glass capillaries and perform whole-cell recordings to measure the membrane potential and current fluxes.

Prof. Dr. Eugen Kerkhoff

Fluorescence microscopy method course

The fluorescence microscopy course will address multicolor fluorescence imaging of living cells. We will employ fluorescent proteins fused to marker proteins to image the dunamics of mitochondria, transport vescicles and the actin cytoskeleton. We will further address the analysis of the microscopic data with the Bitplane Imaris cell imaging software.

Prof. Dr. Oliver Bosch

Dr. Rohit Menon

Animal behaviour method course

Study of animal behavior is central to the understanding of how the environment influences our disposition. In this method course we will discuss both traditional and state of the art methods used to asses and analyze rodent socio-emotional behavior ranging from the elevated plus maze to more complex setups like the social fear conditioning.

Workshops

Prof. Dr. Jens Schwarzbach

MRI method course

Common fMRI analysies ask the question how brain respond to a stimulus. In the methods course "Brain reading" we will turn the question around. We will use machine learning approaches that use brain activity to decode what the stimulus was. If successful, this method -in the context of emotions- will provide us with a biomarker about how a participant feels or felt at a given point in time without asking for a self report. We will introduce the basic concepts of "Brain Reading", and in the practical part you will work with Python notebooks on fMRI data.

PD. Dr. Barbara di Benedetto

Cell culture method course

In vitro cell culture is a method used to investigate the behavior of animal cells in a controlled environment. This method allows to study basic cellular biology. Accordingly, *in vitro* cell culture permits the study of cell metabolism and cell biochemistry. In this framework, we employ freshly isolated cells as primary culture which more easily reflect the biochemical dynamics of the cells *in vivo*.