



Next Generation Optogenetics

Tools and Application

and



From Molecular Machines to Networks of Excitable Cells

funded by **DFG** Deutsche
Forschungsgemeinschaft

Meeting #5

August 31st – September 2nd, 2021

Uslar (nearby Göttingen)

www.spp1926.org

SPP 1926 Meeting #5, August 31st – September 2nd, 2021

Landhotel Am Rothenberg, Rothenbergstraße 4, 37170 Uslar

30th– 31st August pre-meeting for PhD students / Postdocs – see separate programme

31st August 2021, Tuesday

Before 14.00 Arrival and Check-In

14.00 **Welcome, general info on SPP1926 and MBExC** (A. Gottschalk, T. Moser)

Project Proposals / report on state of the art (25, 30 or 35 min + 10 min discussion)

Chair: A. Gottschalk

14.30 **Project 1b:** **Baier / Bernal Sierra / Schneider-Warme / Seifert (35 + 10 min)**
Development and application of RoCK, a novel Rhodopsin Cyclase/K⁺ channel-based optogenetic tool for silencing of excitable cells

15.15 **Project XX*:** **Nalbant/Dehmelt (25 + 10 min)**
Optogenetic manipulation of cell contraction signal network dynamics in tumors

15.50 **Marcus Jeschke, DPZ Göttingen (30 + 5 min; Title t.b.a.)**

16.25 break

Chair: A. Möglich

16.55 **Project XIX*:** **Huet / Moser (25 + 10 min)**
Optical Stimulation of the Auditory Pathway by Blue-Shifted Photoswitchable Glutamate Receptor Agonists

17.30 **Project XV*:** **Elstner / Hegemann / Rost (30 + 10 min)**
Engineering of Chrimson for Subcellular Optogenetic applications

18.10 **Project 11b:** **Soba / Wiegert / Yizhar (30 + 10 min)**
Optogenetic silencing tools for precise, all-optical analysis of synaptic circuits

18.50 **Concluding 1st day, discussion**

19.00 – 20.30 Dinner in the Restaurant

20.30 – 22.00 **POSTER SESSION**

22.00 – 24.00 **Get together in Hotel Restaurant (Please notice: All orders for one's own account)**

* **new projects 2nd funding period**

Xa/b continuation projects

1st September 2021, Wednesday

| | | |
|---------------------------|---------------|--|
| | 9.00 | Announcements (if needed) |
| Chair: S. Kleinlogel | 9.05 | Project XIV*: Vázquez/Kassel (25 + 10 min) Photoswitchable cell-penetrating PNAs for the manipulation of quiescence during regenerative myogenesis |
| | 9.40 | Project XXII*: Rentmeister / Raz (25 + 10 min) Control over mRNA translation by light-mediated uncaging of synthetic 5' caps in combination with fluorescent labeling of mRNAs for in vivo applications |
| | 10.15 | Break |
| | 10.45 | Thomas Mager, University of Göttingen (30 + 5 min; Title t.b.a.) |
| | 11.20 | Project 5a/b: Brüggmann / Gerwert / Herlitze (30 + 10 min) Tuning wavelength and G protein specificity of Melanopsin for optogenetic control of G protein signaling pathways. |
| 12.00 – 13.30 | Lunch | |
| Chair: F. Schneider-Warme | 13.35 | Project XXI*: Prevedel/Heppenstall (25 + 10 min) Development of new voltage imaging tools for studying mammalian neuronal plasticity in-vivo |
| | 14.10 | Project XVI*: Griesbeck / Reiff (25 + 10 min) Second generation genetically encoded photosensitizers and killers for systems neuroscience |
| | 14.45 | Project XVII*: Hegemann / Kleinlogel (25 + 10 min) Shrimp Rhodopsins as new far-red absorbing optogenetic tools |
| | 15.20 | Break |
| Chair: S. Herlitze | 15.50 | Daniel Hillier, University of Göttingen (30 + 5 min; Title t.b.a.) |
| | 16.25 | Project 6a/b: Gottschalk / Lehnart / Sasse (30 + 10 min) Going full circle - optogenetic control of Ca ²⁺ release from and reuptake into the endoplasmic reticulum |
| | 17.05 | Project 9a/b: Mayer / Möglich (25 + 10 min) Photoactivated RNA Binding in a Blue-Light Receptor Enables Optoribogenetics |
| | 17.40 | Discussion |
| | 18.00 – 20.00 | Dinner in the Restaurant – <i>Possibly BBQ(?), evening talks then 1 hour later</i> |
| Chair: T. Moser | 20.00 | Claudia Richter, DPZ Göttingen (30 + 5 min; Title t.b.a.) |
| | 20.35 | Oliver Schlüter, University of Göttingen (30 + 5 min; Title t.b.a.) |
| | 21.10 – 23.00 | Get together (please notice: Orders on one's own account) |

2nd September 2021, Thursday

A. Gottschalk,
T. Moser

9.00 Announcements (if needed)

9.05 YIP #1: Arend Vogt

9.25 YIP #2: Martin Reynders

9.45 **Stephanie Lacour (EPFL)**, Title t.b.a.

10.30 Break

11.00 Organization: **workshops, SPP1926 final meeting 2022, future initiatives, any other business**

11.30 **Project 8a/b: Di Ventura / Kassel (25 + 10 min)**
Shedding light on myogenesis: using optogenetics to investigate myoblast differentiation and muscle regeneration

12.05 **Project XVIII: Lang / Sumser / Thorn-Seshold (30 + 10 min)**
Photo/photoredox-switchable ligands as chemical tools for optogenetics

12.45 **Wrap-up, final discussion, end of meeting**

13.00 - 14.00 lunch / farewell

Chair: A. Rentmeister

How to get there:

Venue: Landhotel Am Rothenberg, Rothenbergstraße 4, 37170 Uslar (Stadtteil Volpriehausen)

<https://www.am-rothenberg.de/home/>

Google maps plus code: [MP5Q+85 Uslar](#)

By public transport:

etc.