

Workshops offered in SPP1926 in 2021

April 19th 2021

| # | Lab | Topic | Participants | Date / Date range |
|---|-------------------------------------|--|---|--------------------------------------|
| 1 | Di Ventura (Freiburg) | Nuclear translocation experiments (with LINuS and/or LEXY) in cells in culture | 2-4 | September 2021 or later |
| 2 | Brügmann, Huet, Moser (Göttingen) | Tissue clearing and light sheet microscopy | | |
| 3 | Raz (Münster) | Live imaging in zebrafish embryos, optogenetics and image analysis | 2-3 | 5.-6. October 2021 (2 full days) |
| 4 | Kleinlogel (Bern/CH) | HEK-cell electrophysiology and optoGPCRs | 3-5 | October-December 2021 (3-4 days) |
| 5 | Wiegert / Soba (Hamburg / Erlangen) | <ul style="list-style-type: none"> • 2-photon spine calcium imaging in slices and in vivo (mice) • Bidirectional optogenetic manipulation of neuromodulatory systems in vivo (mice & <i>Drosophila</i>) • Optogenetics, pupillometry & fiber-photometry in vivo (mice) • optogenetic experiments in <i>Drosophila</i> • optogenetics in slice culture • programming and data analysis | 2-4 | |
| 6 | Sumser / Thorn-Seshold (Munich) | <p>Experimentally using photoswitchable chemical reagents</p> <p>Day 1:</p> <ul style="list-style-type: none"> - 2-3 hours seminar to understand what relaxation time, wavelengths, PSS, etc. really mean - 3-4 hours doing switching in cuvette to see how these properties influence performance; optional, assist in synthesising a photoswitch. <p>Day 2:</p> <ul style="list-style-type: none"> - 2-3 hours seminar preparing to apply chemical photoswitches in biology (incl. ensuring and checking solubility, what controls to use, how to understand the issue of small molecule diffusion and biolocalisation etc) - watching/doing short-term cell experiments. Ephys patching & switching currents - Imaging & switching microtubule dynamics and cell migration. | 5-6, maybe offered twice, depends on demand | June-July or October-November |
| 7 | Gottschalk (Frankfurt) | Optogenetics in <i>C. elegans</i> , behavioral analysis, imaging (Ca ²⁺ , voltage, combined with optogenetic stimulation) | 2-6 (depends on Corona situation) | Late Oct. / early Nov. 2021 (2 days) |
| 8 | Bernal-Sierra and Rost (Berlin) | Electrophysiology, measuring and characterization of optogenetic tools in HEK cells and Neurons | 2 | September 2021 (2 days) |

Theoretical workshops (zoom):

| # | Lab | Topic | Date |
|---|-------------------------|--|----------------|
| 1 | Bernal-Sierra / Möglich | optogenetic tool development and biophysical characterization, screening | September 2021 |
| 2 | Wiegert / Huet | Programming & data analysis / introduction to statistics | |
| 3 | Soba / Gottschalk | in vivo optogenetics in worm, fly and fish | t.b.d. |
| 4 | Griesbeck | Protein Engineering / reporter proteins | |
| 5 | Nalbant / Dehmelt | Quantitative image analysis of intracellular dynamics | |
| 6 | Rentmeister | installing photocaging groups in biomolecules | |