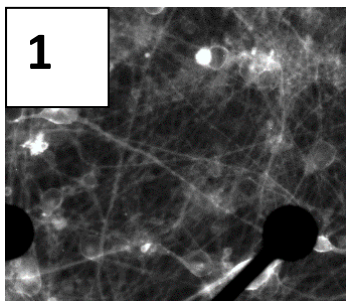# Opto – Genetics at MST

Stimulation of genetically altered cells with light
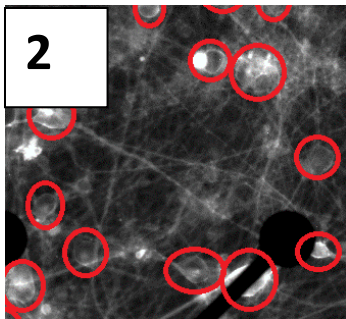
Aim:

- ➔ dissection of network structures in the brain/ developing networks
- ➔ principles of learning and memory
- ➔ neurodegenerative diseases
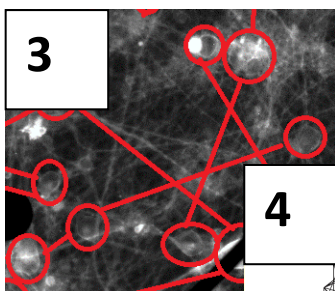- ➔ development of medicine and prostheses

Work and methods:

1. Setting up/ improving system for spatially and temporally resolved cell illumination (stimulation)
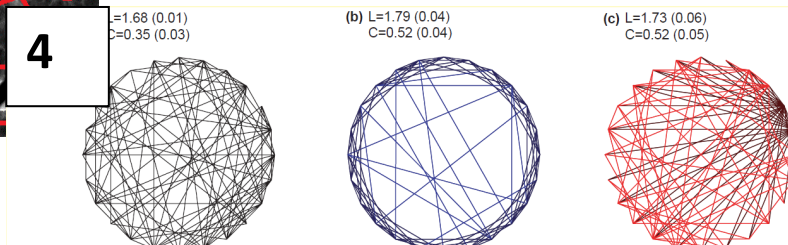
2. Identification of neurons in images. Currently done by hand, automation possible via deep learning/image processing

3. Identification of connections between neurons with statistical analysis of electrical signals: cross correlations, causality analysis

4. Identification of network structures, e.g. via graph analysis (see: seven bridges of Königsberg) and observation of development in time

Student Theses (SA/Bachelor/Master/DA) and Contracts (SHK/WHK) available on all Subjects!

Please contact: Felix Schmieder, felix.schmieder@tu-dresden.de

Tel: 463/33894, Room: BAR 25