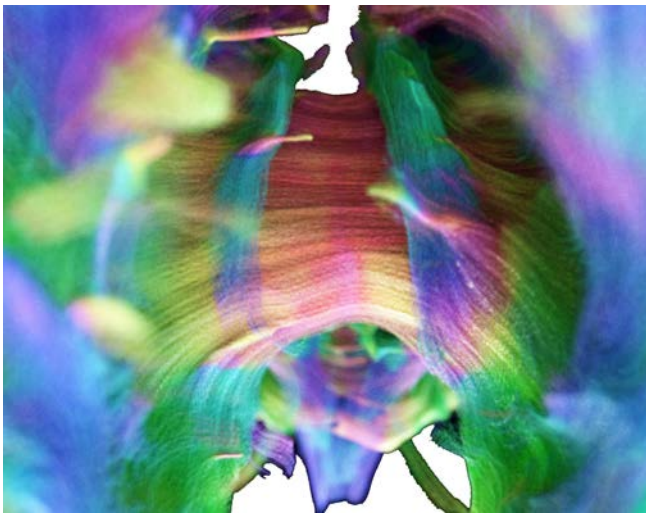
University of Basel

Department of Biomedical Engineering

# Translational Imaging in Neurology (ThINk) Basel



Diffusion imaging focus on brainstem fiber tracts (picture: ThINk)

3D cut of a structural brain image showing multiple sclerosis lesions (picture: ThINk)

**ThINk Basel is a group of investigators who apply, optimize and integrate magnetic resonance imaging methods with clinical, neurophysiological and laboratory measures with the goal to investigate the physiopathology of neurological diseases, mechanisms of disease progression and response to therapy.**

Our main research focus is the understanding of multiple sclerosis (MS) physiopathology, the identification of biomarkers of MS progression and therapy response, the development of new computational models of MS disease impact and evolution as well as the investigation of mechanisms of structural remodelling/regeneration within the central nervous system of MS patients.
Further, we investigate the physiopathology and brain plasticity of stroke, headache/ migraine and neuro-HIV. As well, we study quantitative spinal cord imaging biomarkers for motor neuron diseases, spinal muscular atrophy and post-polio syndrome. In addition, we develop and optimize reliable, automatic tools for magnetic resonance image processing.
Main areas of investigation:

- Brain & spinal cord inflammation and degeneration
- MS Pathology & MRI Biomarkers in large cohort studies
- Imaging Axonal Damage and repair in MS
- Brain plasticity in neurological patients
- Spinal cord imaging biomarkers for motor neuron diseases and spinal muscular atrophy

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