



Tuesday, July 11, 2023, 15:15 hrs
Seminar Room C402

Guest Lecture

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Post-mortem MRI for the validation of quantitative MRI parameters

MRI signal generation is substantially influenced by factors such as water content, iron, myelin, and several other contributors. Iron levels can be directly assessed using mass spectrometry, while the quantitative impacts of myelin's structure and composition remain unknown to a certain extent and are often inferred from theoretical simulations. Additionally, MRI relaxation rates and susceptibility are sensitive to these tissue constituents, but their specificity is limited. In this context, post-mortem investigations utilizing complementary methods such as TEM, LA-ICP-MS, MALDI-MSI, CARS, and SAXS-TT provide unique insights for the validation and understanding of quantitative MRI parameters. However, in-situ post-mortem MRI has to accommodate for factors like variable temperature, deoxygenated blood, and perfusion. Furthermore, the process of formalin fixation introduces a significant confounder, often obstructing direct conclusions. In this presentation, I aim to summarize our work on translating post-mortem MRI findings to in-vivo conditions, outline the analytical methods used to assess brain tissue structure and composition, and discuss potential collaborations with the MPI CBS.