Prof. Ingolf Sack - „Quantitative MRI and Elastography“ (W3) at Charité – Universitätsmedizin Berlin.

Medical imaging is the backbone of state-of-the-art clinical diagnosis. Current medical imaging modalities such as magnetic resonance imaging (MRI) acquire morphological, functional, and structural information with high spatial resolution in a short time. However, despite ongoing progress, existing MRI technologies often suffer from limited comparability of systems, platforms, and scan protocols.

Therefore, worldwide research effort is being invested in quantitative MRI towards the development and clinical translation of system-independent and biophysics-based imaging markers. These markers reflect intrinsic tissue properties and can be reproducibly determined to predict such properties using tests based on methods from biophysics, chemistry, or material science. A good example here is elastography, which quantifies viscoelastic tissue parameters for clinical diagnosis across medical imaging systems and modalities. Prof. Sack is a worldwide leading expert in the field of MRI elastography.

The „Quantitative MRI and Elastography” professorship further strengthens the research focus of Charité – Universitätsmedizin Berlin in the field of medical imaging. Prof. Sack leads a team of interdisciplinary scientists engaged in developing innovative quantitative methods in MRI and elastography. Prof. Sack’s research is centered on the provision of biophysical reference values and standardized procedures for clinical radiology and all scientific areas related to medical imaging, including systems biology and tissue modelling. The early involvement of young scientists from medicine, physics, biology, computer science, and engineering sciences in the development and clinical validation of new quantitative methods of medical imaging ensures a broad and fresh perspective on the multidisciplinary field of medical imaging. Prof. Sack is chair of the Research Training Group on Quantitative Medical Imaging (BIOQIC, DFG GRK2260/1) as well as junior academies of the DFG (e.g., "qMRT as Key Technology in the Life Sciences", organized in 2019 at the Charité, Berlin) which provide platforms for interdisciplinary networking of young scientists in the field of imaging sciences.

The professorship thus bundles the human and intellectual resources of the SFB1340 and the GRK2260 in the fields of qMRT and elastography and is anchored in subprojects such as the SFB project C03.