

Syllabus

Magnetic resonance imaging (MRI) is an important radiological modality for staging of head and neck tumors as well as assessment of therapy response. In addition to morphological imaging, diffusion-weighted magnetic resonance imaging may be used to assess tumor aggressiveness. New diffusion imaging techniques such as intravoxel incoherent motion not only provide information on the cellularity of the tumor but also on tissue perfusion properties. Respiratory challenges combined with $R2^*$ measurements may be used to assess tumor oxygenation. On the other hand, MRI of the head and neck area is hampered by strong magnetic field inhomogeneities which affect fat suppression techniques and which may result in signal dephasing and image distortions in echo-planar data readout strategies. Moreover, reliable post-processing routines need to be found for accurate calculation of biomarkers.