

Lecture - Application of Front End Advanced technologies to Medical Imaging

Title - Diffusion MRI: From Physics to Medical Imaging to Clinical Applications

Abstract

Diffusion magnetic resonance imaging is a powerful technique that has led to improvements in the diagnosis and prognosis of many diseases. Here, we will introduce how Brownian motion of water can be used to investigate biological tissue integrity. Moreover, we will describe how to improve tensor modeling using advanced mathematical formalism derived from theoretical physics. Finally, we will discuss how this information could be integrated in a model that leads to effective visualization as well as quantitative scalar maps that improve the understanding of the underlying tissue structure properties.

