Evaluating quantitative proton-density-mapping methods

By amezer
Created 6/9/2016
By amezer June 9, 2016


Abstract:

Quantitative magnetic resonance imaging (qMRI) aims to quantify tissue parameters by eliminating instrumental bias. We describe qMRI theory, simulations, and software designed to estimate proton density (PD), the apparent local concentration of water protons in the living human brain. First, we show that, in the absence of noise, multichannel coil data contain enough information to separate PD and coil sensitivity, a limiting instrumental bias. Second, we show that, in the presence of noise, regularization by a constraint on the relationship between T1 and PD produces accurate coil sensitivity and PD maps. The ability to measure PD quantitatively has applications in the analysis of in-vivo human brain tissue and enables multisite comparisons between individuals and across instruments.

Journal:
Hum Brain Mapp

Date Published:
06/06/2016

Postdoctoral Program

At ELSC, you have the opportunity to be part of our flourishing research environment and community.

read more

Studying at ELSC

Our Int'l Ph.D. program provides outstanding students with top-notch courses in computational neuroscience.

read more

The Building
The Jerusalem Brain Sciences Building will provide a state-of-the-art research and teaching facility for the Edmond and Lily Safra Center for Brain Sciences.

read more
ELSC Media Channel

Get into our media channel and investigate ELSC’s latest videos: seminars, public lectures, courses and video articles.

read more

Source URL: http://elsc.huji.ac.il/mezer/publications/evaluating-quantitative-proton-density-mapping-methods