



NODDI – recent advances in brain microstructure imaging with diffusion MRI

Workshop 10th June 2016,
Cyclotron Research Centre, University of Liège

REGISTER NOW!

Free attendance, limited places available

VENUE

Cyclotron Research Centre
Allée du 6 Août, 8 (Bât. B30), 4000 Liège, Belgium

CONTACT AND COORDINATION

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NODDI – RECENT ADVANCES IN BRAIN MICROSTRUCTURE IMAGING WITH DIFFUSION MRI

INVITED SPEAKER

Gary Hui Zhang, *Senior Lecturer in Medical Image Computing, Department of Computer Science, University College London*

ABSTRACT

Tissue microstructure is an important aspect of brain anatomy that historically can only be studied with fixed tissue samples under a microscope. The development of diffusion MRI has ushered in a new era in which tissue microstructure can be studied in living human brain and be directly linked with brain function. Since the introduction of diffusion tensor imaging (DTI) over two decades ago, diffusion MRI has established itself as the modality of choice for such investigation. In this context, my talk will focus on some of the most recent development in diffusion MRI, covering both the analysis and modelling perspectives. In particular, I will present an analysis pipeline tailored for detecting serial or longitudinal changes in tissue microstructure using DTI, and discuss neurite orientation dispersion and density imaging (NODDI), a modelling framework aiming to disentangle the key microstructural factors contributing to the standard DTI indices.

PROGRAMME

MORNING SESSION – THEORY

- 08:30-09h00 welcome and coffee
- 09:00-10:00 diffusion MRI : basic principles (Evelyne Balteau & Gary Zhang)
- 10:00-10:15 break and coffee
- 10:15-11:15 recent advances in brain microstructure imaging with diffusion MRI (Gary Zhang)
- 11:15-12:00 discussion
- 12:00-13:00 lunch time

AFTERNOON SESSION – HANDS ON

- 13:00-13:45 NODDI processing : overview
- 13:45-14:30 NODDI processing : demo NODDI toolbox
- 14:30-15:00 discussion : alternative processing tools and algorithms, data quality
- 15:00-15:15 break and coffee
- 15:15-17:00 data processing hands on and discussion continued