**PhD course schedule:**

**Anatomical and physiological fingerprinting of the human brain with multi-modal MRI**

Monday 26th February – 2 March 2018

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| **Time** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| 9:00 – 9:30 (30 min) | Recap of basic MR and imaging principles  *Lars Hanson* | Recap: qMRI | DWI:  Group work presentation | BOLD/ASL:  Calibrated BOLD and CMRO2 measured using ASL and BOLD methods  *Richard Wise*  Recap: ASL/BOLD | Practical group work |
| 9:30-10:10 (40 min) | Recap of basic MR and imaging principles  *Lars Hanson* | DWI:  Diffusion and Anatomy  *Tim Dyrby* | DWI:  Group work presentation | Practical group work |
| 10:10:- 10:15 (5 mn) | Short BREAK | Short BREAK | Short BREAK | Short BREAK | Short BREAK |
| 10:15-10:55 (40 min) | Recap of basic MR and imaging principles  *Lars Hanson* | DWI:  Diffusion MRI and acquisition quality  *Henrik Lundell* | DWI:  Group work presentation  Recap: DWI | MRS:  MR spectroscopy: localization, signal evolution and signal analysis  *Vincent Boer* | Practical group work |
| 10:55- 11:35 (40 min) | qMRI:  Introduction to quantitative MRI  *Gunther Helms* | DWI:  Processing, Modelling, tractography  *Kasper Andersen* | BOLD:  Basic introduction, physiology, sequences and stimulation.  *Kasper Andersen* |  | MRS:  Multimodal MR spectroscopy  *Uzay Emir* |
| 11:35:- 11:40 (5 min) |  | Short BREAK | Short BREAK | Short BREAK | Short BREAK |
| 11:40-12:20 (40 min) |  | Practical group work pre- and clinical MRI and simulations  *Human 3T MRI, preclinical 7T MRI, microstructure simulations* | ASL:  Basic principle, analysis and application  *Esben Petersen* | MRS:  Neuroscientific applications of MR spectroscopy  *Anouk Marsman* | Recap: MRS |
| LUNCH (12-12:40) |
| qMRI:  Applications and pitfalls  *Nikolaus Weiskopf* |
| 12:20-13:00 (40 min) |  | LUNCH | LUNCH | LUNCH | LUNCH |
| 13:00- 13:40 (40 min) |  | Practical group work pre- and clinical MRI and simulations | BOLD:  Analysis and design (GLM, block, event related and resting state)  *Kristoffer Madsen* | Practical group work  *Human 7T* | Summary:  Why Multimodal thinking?  *Hartwig Siebner* |
| Short break |
| 13:40-14:40 (60 min) | Group work | Practical group work pre- and clinical MRI and simulations | Practical work on 3 topics:  1: Data acquisition (ASL and BOLD) | Practical group work | Summary :  Table discussion and reflections on multimodal imaging  *Hartwig, Tim, Esben, Kristoffer, Axel, Lars* |
| 14:40-14:45 (5 min) | Short BREAK | Short BREAK | Short BREAK | Short BREAK | Goodbye |
| 14:45-15:45 (60 min) | Group work | Practical group work pre- and clinical MRI and simulations | 2: functional ASL and BOLD analysis (Block design) | Practical group work |  |
| +15:45-16:45 ( 60 min) | Group work | Practical group work pre- and clinical MRI and simulations | 3: BOLD analysis using SPM (event related and resting state designs) | Practical group work |  |