

# Agenda

07.-10. Jan 2020

St. Anne's College  
56 Woodstock Rd, Oxford OX2 6HS



## **Tuesday 07.01.2020**

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Registration desk open from 13:00-21:00 & Optional guided tour 15:00

## **Wednesday 08.01.2020**

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**Breakfast & Speaker Upload (registration desk open from 6:30-8:30)**

**08:30 Opening & Welcome (Mary Rutherford, Jana Hutter)**

**08:35- 10:10 MRI In-Utero – Challenges, Safety & Validation**

Moderators: Ed Johnstone, University of Manchester & Mary-Ellen Empey, University of Western Ontario, Canada

- Challenges of In-Utero imaging, Penny Gowland, University of Nottingham, UK
- Fetal SAR modelling, Filiz Yetisir, Harvard Medical School, USA
- Maternal positioning, Emer Hughes, King's College London, UK
- The human placenta's structural-functional associations: an ex-vivo MRI study, Sagol Brain Institute, Daphna Link, TASMC, Israel (abstract 1)
- T2\* weighted placental MRI in relation to placental histopathology and birth weight, Marianne Sinding, Aalborg University Hospital, Denmark (abstract 2)
- Challenges of Identifying Human Fetal Brown Adipose Tissue, Stephanie Giza, University of Western Ontario, Canada (abstract 3)
- T2\* relaxometry of human fetal liver in the mid-trimester gestation at 1.5T, Mathias Muehler, University of Wisconsin-Madison, USA (abstract 4)

**10:10-10:40 Keynote lecture: Environmental influences, Tim Nawrot, Hasselt University, Belgium**

**10:45-11:10 Coffee Break**

**11:10-12:30 The fetal brain: structure, function in health & disease**

Moderators: Mary Rutherford, King's College London & Kelly Payette, University Children's Hospital Zurich

- Fetal Brain Atlas development, Georg Langs, University of Vienna
- Functional fetal MRI, Karolis Vycheslav, Oxford, UK
- Diffusion MRI in the Developing Human Connectome Project, Daan Christiaens, King's College London
- Fetal brain age estimation and anomaly detection using attention-based deep ensembles, Wen Shi, Zhejiang University, Hangzhou (abstract 5)
- Functional thalamocortical connectivity development revealed by in-utero resting state fMRI, Athena Taymourtash, Medical University of Vienna, Austria (abstract 6)

**12:40-13:30 Buffet Lunch in the College Hall**

**13:30-14:00 Keynote lecture: Early programming, Susan Ozanne, Institute of Metabolic Science, Cambridge, UK**

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## 14:10-15:50 Modelling, reconstruction & Pipelines

Moderators: Alena Uus, King's College London, UK & Joseph Hajnal, King's College London

- Watching human brains begin to differ before birth: high resolution morphometry of healthy brain growth, Colin Studholme, University of Washington
- Machine Learning for Automatic Localization and Fetal Detection, Bernhard Kainz, Imperial College
- 3D placental models for FGR, Alys Clark, Auckland University, New Zealand
- Advanced slice-to-volume reconstruction for fetal brain and body, Maria Deprez, King's College London
- Automatic Pathological Fetal Brain Segmentation, Kelly Payette, University Children's Hospital Zurich (abstract 7)
- Multi-component atlas of fetal brain development, Maximilian Pietsch, King's College London (abstract 8)

## 15:50:16:20 Coffee break

## 16:20-17:10 Fast through the Uterus (19 posters 3min power pitch presentations)

Moderators: David Lloyd, King's College London

- Placental assessment with T2\* sequence in fetuses with FGR (ID 20), Kilian Vellvé, BCNatal Barcelona, Spain
- Increase in Mid-pregnancy Placental Pyruvate-to-Metabolite Conversion in Guinea Pigs Fed a Lifelong Western Diet (ID 21), Mary-Ellen Empey, University of Western Ontario, Canada
- Qualitative and Quantitative analysis of placental function to characterize pathophysiology in congenital heart disease (CHD) (ID 22), Johannes Steinweg, King's College London, UK
- Quantitative Dynamic Contrast Enhanced (DCE) MRI Evaluation of the Rhesus Placenta Throughout Gestation with Varying Pathology (Poster ID 23), Daniel Seiter, University of Wisconsin-Madison, USA
- Online iGRASP for fetal cardiac MRI with Gadgetron reconstruction (ID 24), Marjolein Piek, Lund University, Sweden
- Volumetric Mapping of the Placenta to a Flattened Template for Visualization of Regional Anatomy and Function (ID 25), Mazdak Abulnaga, MIT, Boston, USA
- 3D fetal models for in-utero craniofacial dysmorphic feature assessment: Is it feasible? (ID 26), Jakkie Matthew, King's College London, UK
- Assessing placental tissue heterogeneity and maturation by T2\* in vivo predicts neonatal birth centile in uncomplicated pregnancies (ID 27), Julie Nihour, King's College London
- Investigating venous return in the human placenta (ID 28), George Hutchinson, University of Nottingham, UK
- Learning-based approach for accelerated IVIM imaging in the placenta (Poster ID 29), Fan Huang, Zhejiang University, Hangzhou, China
- MRI Screening of Placenta Accreta Spectrum disorders (DIANE): establishment of an intervention research protocol (ID 30), Robin Draveny, University of Lorraine, France
- Assessment of uteroplacental vascularisation in early first-trimester pregnancy with contrast-enhanced ultrasound (ID 31), Charline Bertholdt, CHRU Nancy, France
- Quantification of T1 and T2\* Relaxation Times of Fetal Fat & Fetal Muscles at 1.5 T (ID 32), Simran Sethi, University of Western Ontario, Canada
- T2-Weighted Fetal Brain MRI: Utilising Slice-To-Volume Reconstruction to Reduce Repeat Acquisition (ID 33), Elaine Felicity Green, King's College London, UK
- Mapping fetal brain development based on automated brain segmentation & atlasing (ID 34), Haotian Li, Zhejiang University, Hangzhou, China
- Fetal organs assessed by T2\*-weighted MRI in relation to birthweight (Poster ID 35), Ditte Hansen, Aalborg University Hospital, Denmark
- Longitudinal T2\*-based BOLD Placental MRI in Obese Pregnant Human Subject (ID 36), Ante Zhu, University of Wisconsin-Madison
- Non-rigid Motion Correction for Fetal Body MRI (Poster ID 37), Alena Uus, King's College London, UK

## Poster session with pre-dinner drinks

19:30 Conference Dinner in the College Hall

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## Thursday 09.01.2020

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**Breakfast & Speaker Upload (registration desk open from 6:30-8:30)**

**08:45-09:15 Keynote lecture: Early brain developmental disorders, Mary Rutherford, King's College London, UK**

### **09:20-11:00 Placental MRI – ready for clinical use?**

Moderator: Lucy Chappell, King's College London & Oliver Wieben, University of Wisconsin-Madison

- Relaxometry to study the placenta in-vivo, Anne Sorensen, Aalborg University Hospital, Denmark
- MR relaxometry to assess the placenta in FGR, Emma Ingram and Penny Cristinacce, University of Manchester
- Placental attachment disorders & the role of MRI, Elspeth Whithby, University of Sheffield, UK
- Movement of blood in the placenta, Neele Dellschaft, University of Nottingham, UK
- Placental perfusion measurements with velocity-selective arterial spin labeling: the importance of parameter settings, Anita Hartevelde, Utrecht University (abstract 9)
- Placental perfusion assessed by MRI IVIM model and its correlation with placental volume in near term pregnancies complicated by fetal growth restriction, Ayako Nakaki, BCNatal Barcelona (abstract 10)

### **11:00-11:30 Coffee Break**

**11:45-12:15 Keynote Lecture: In vivo assessment of the placenta by contrast-enhanced ultrasound, Victoria Roberts, OHSU Portland, USA**

### **12:15-13:00 Buffet Lunch in the College Hall**

### **13:00 -14:30 Cutting edge clinical questions and the role of MRI**

Moderator: Lucy Chappell, King's College London, UK & Ditte Hansen, Aalborg University Hospital, Denmark, Denmark

- Fetal surgery, Jan Deprest, KU Leuven, Belgium
- Functional placental MRI: past, present, future?, Laurent Salomon, LUMIERE platform, Université de Paris, Hôpital Necker Enfants Malades, Paris, France
- The role of MRI to detect preterm birth – lung and inflammation, Lisa Story, King's College London
- MRI-planned laser ablation in TTTS, Elisenda Eixarch, Fetal Medicine Research Center, Barcelona
- Cardiac and Placental MRI in women at high-risk of preeclampsia, Kathleen Colford, King's College London (abstract 11)

### **14:30-15:30 Coffee Break & Poster Viewing**

### **15:30-17:30 Fetal circulation**

Moderators: Erik Hedstrom, Lund University & Milou van Poppel, King's College London

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- MRI in the antenatal CHD assessment, Kuberan Pushparajah, Evelina Children's Hospital, UK
- Doppler-Ultrasound guided fetal MRI, Manuela Tavares de Sousa, University of Hamburg, Germany
- Fetal whole-heart 4D blood flow MRI, Thomas Roberts, King's College London
- Morphological fetal cardiac MRI, Christopher McRoy, ETHL, Lausanne, Switzerland
- Fetal adaptations to adverse pregnancy, John Sled, University of Toronto
- Deep Dynamic Generative Adversarial Network Fetal CMR Reconstruction, Klas Berggren, Lund University (abstract 12)

**18:30 British Pub Evening**

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## Friday 10.01.2020

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**Breakfast & Speaker Upload (registration desk open from 6:30-8:30)**

**09:30 Keynote Lecture "Preterm functional MRI informing In-Utero MRI?" Tomoki Arichi, King's College London**

### **10:00-11:00 Novel contrasts & Validation (part I)**

Moderators: Emma Ingram, Manchester University & Penny Gowland, Nottingham University

- Using MRI to image early gestation, Michal Neeman, Weizmann Institute for Science
- Ferumoxytol Imaging, Ante Zhu, University of Wisconsin-Madison, USA
- Multi-modal fetal MRI, Paddy Slator, University College London

### **11:00-11:20 Coffee Break**

### **11:20-12:30 Novel contrasts & Validation (part II)**

Moderators: Emma Ingram, Manchester University & Penny Gowland, Nottingham University

- Metabolic In-Utero Imaging, Charles McKenzie, University of Western Ontario, Canada
- In-Vivo Measurement of Placental Oxygenation via Frequency-Domain Near-Infrared Spectroscopy (FD-NIRS), Nadav Schwartz, University of Pennsylvania
- Left ventricular function after preeclampsia, Daniel Salehi Lund University (abstract 13)
- Velocity-Selective ASL MRI in the Rhesus Placenta, Ruiming Chen, University of Wisconsin-Madison (abstract 14)

### **12:30 Closing & Awards**

### **13:00 Buffet Lunch in the College Hall**

Optional guided tour 14:00

### **Local Organizers:**

Mary Rutherford  
Joseph Hajnal  
Laura McCabe  
Jana Hutter  
Anthony Price  
David Lloyd  
Emma Ingram  
Ed Johnstone  
Penny Gowland