



Program

Imaging Cerebral Physiology Network
Meeting, 5th Edition

November 29 – December 1st, 2023

Day 1: November 29th

Time		Length (minutes)		
08:30-9:15		45		Arrival, registration
			Speaker	Title
09:15-09:20		5	Alex Bhogal Assistant Professor, UMCU, Utrecht	MODERATOR UNTIL BREAK incl. intro speaker: Alex Bhogal Welcome
09:20-10:00		40	Jaco Zwanenburg Associate Professor, UMCU, Utrecht	Seismology of the Brain
10:00-13:00				Session 1a -Methods
	10:00-10:20	20	Joe Fisher	Model-free cerebral perfusion metrics calculated directly from a transient hypoxia-induced step change in deoxy-hemoglobin
	10:20-10:40	20	Ian Driver	Measuring Pulse-wave Velocity in the Healthy Human Brain using inflow magnetic contrast MRI
	10:40-11:00	20	Aneurin Kennerly	Measurement and Modulation of Cerebral ATP flux: A 31P Magnetisation Transfer Magnetic Resonance Spectroscopy study with 670nm photobiomodulation.
	11:00-11:20	20		BREAK
				Session 1b – Blood
				MODERATOR AFTER BREAK incl. intro speaker: Lena Vaclavu
	11:20-11:40	20	Jiani Wu	Longitudinal changes in cerebral metabolic rate of oxygen (CMRO ₂) in cognitively normal older adults
	11:40-12:00	20	Megan Aumann	Cerebral blood flow and oxygen extraction fraction responses to conservative and aggressive treatments in adults with sickle cell disease
	12:00-12:20	20	Yunjie Tong	Novel identifications of cerebral hemodynamics in BOLD fMRI associated with fetal hemoglobin in patients with sickle cell disease
	12:20-13:00	40	John Wood Professor of Paediatrics and Radiology, LA Children's Hospital	Is Anemia Important? Ask your Brain !
13:00-14:30		90		LUNCH: @13:45 → 45min Demo's RapidTide in Auditorium
14:30-17:00				Session 2 – Clinical
				MODERATOR: Peiyang Liu
	14:30-14:50	20	Cristina Comella	Mapping cerebrovascular reactivity and vascular lag in gliomas with multi-echo BOLD fMRI and breath holding
	14:50-15:10	20	Manus Donahue for Caleb Han	Cerebrovascular reactivity response time as revealed by time regression analysis is uniquely correlated to recent stroke symptomatology in Moya Moya patients
	15:10-15:30	20	Stanley Pham	Association between small vessel function and progressive white matter injury in CADASIL using advanced 7T MRI
	15:30-15:50	20	Video presentiaton: Oluwateniola Akinwale	CO ₂ and O ₂ reactivity in brain gliomas
	15:50-16:10	20		BREAK
				INTRO SPEAKER: Alex Bhogal
	16:10-17:00	50	Jorn Fierstra	Integration of BOLD cerebrovascular reactivity into clinical ischemic stroke management
18:30-22:00			DINNER + SOCIAL EVENT	Utrecht Rail Museum (Spoorweg Museum)

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Day 2: November 30th

Time		Length (minutes)		
09:00-9:20		30		Arrival, registration
			Speaker	Title
09:20-10:00		40	Lydiane Hirschler Post-doc. researcher, Leiden University Medical Center	MODERATOR UNTIL BREAK incl. intro speaker: Manus Donahue Imaging techniques to assess the CSF-mediated brain clearance system in humans
10:00-13:00				Session 3 – vessels and neuro-fluids
	10:00-10:20	20	Ellen van Hulst	Quantifying Cardiac-Induced Brain Tissue Deformations Using DENSE MRI: Insights from an Observational Study
	10:20-10:40	20	Manon Schipper	Does a manual determined threshold bias quantitative perivascular spaces measurements based on the Frangi vesselness filter?
	10:40-11:00	20	Lotte van der Voort	CO ₂ as an engine for neurofluid flow: exploring the coupling between vascular reactivity, brain clearance and changes in tissue properties
	11:00-11:20	20		BREAK MODERATOR AFTER BREAK incl. Intro speaker: Lotte van der Voort
	11:20-11:40	20	Lori Donaldson	Age-related differences in emotional fMRI responses after accounting for cerebrovascular reactivity decline
	11:40-12:00	20	Dinil Sasi Sankaralayam	Impact of caffeine on cerebrovascular reactivity in caffeine-naïve healthy adults
	12:00-12:20	20	Beatriz Padrela	Blood-brain barrier permeability measured with ASL differs between cognitive stages and amyloid status
	12:20-13:00	40	Zixuan Lin Assistant Professor, Zhejiang University, Hangzhou, China	Non-contrast imaging of blood-brain-barrier permeability and its clinical application
13:00-14:30		90		LUNCH: Posters + @13:45 → 45 min Demo's PhysioPy in Auditorium
14:30-17:40				Session 4 – structure and function MODERATOR: Maria Guidi
	14:30-15:10	40	Stephanie Forkel Associate Professor, Donders & Radboud University, Nijmegen	Mapping Brain connections; from anatomy to the clinic
	15:10-15:30	20	Elisa Zamboni	Mapping curvature domains in human V4 using CBV-sensitive layer-fMRI at 3T
	15:30-15:50	20	Hendrik Mattern	Combining vessel distance mapping and non-negative matrix factorization to identify arterial and venous patterns in the putamen
	15:50-16:10	20	Wesley Richardson	Detectability of white matter perfusion across flow territories when using arterial spin labelling MRI: Impact of hematocrit and bolus arrival times
	16:10-16:30	20	Mathijs B.J. Dijsselhof	Cerebral blood flow as an intermediary between cardiovascular and cerebrovascular health: results from the Insight46 study
	16:30-16:50	20		BREAK INTRO SPEAKER: Alex Bhogal
	16:50-17:40	50	Blaise Frederick Associate Professor, Harvard Medical School, Boston	Using resting state fMRI to study everything but neuronal activity + the mysterious growing sLFOs!

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Day 3: December 1st

Time		Length (minutes)		
09:00-9:20		30		Arrival, registration
			Speaker	Title
				MODERATOR UNTIL BREAK incl. intro speaker: Claudine Gauthier
09:20-10:00		40	Hanzhang Lu Professor of Radiology, Johns Hopkins University, Baltimore	CVR as a candidate biomarker in vascular cognitive impairment: the MarkVCID Consortium experience
10:00-13:00				Session 5 - Cerebrovascular & Metabolism
	10:00-10:20	20	Nic Blockley for Ahlam Alzaidi	Preliminary data for using hyperoxia and multiparametric qBOLD to estimate the oxygen extraction fraction
	10:20-10:40	20	Kevin Murphy for Hannah Chandler	Increased brain oxygen metabolism and oxygen extraction in patients with cystic fibrosis
	10:40-11:00	20	Eleonara Patitucci	Single image super resolution reconstruction of susceptibility maps for improved vessel segmentation and oxygen saturation estimation
	11:00-11:20	20	Zacharie Potvin-Jutras	Sex differences in the effects of physical activity on cerebrovascular reactivity
	11:20-11:40	20		BREAK MODERATOR incl. intro speaker: Wouter Schellekens
	11:40-12:00	20	Julia Huck	Vascular and metabolic changes in individuals with and without the ApoE ε4 allele
	12:00-12:20	20	John Wood for Joseph Liu	Automated cerebral blood flow metrology and physiology in anesthetized children using phase contrast MRI
	12:20-12:40	20	Zhiyi Hu	Macrovascular-suppressed ASL MRI in neonates: quantification of cerebral blood flow and arterial transit time
	12:40-13:10	30	Emma Hafkamp Clinical Psychologist	Something Different: How we can modulate our own physiology?
13:10-14:30		90		LUNCH: Respiratory systems, @13:45 → 45min Demo seeVR
14:30-18:00				Session 6 - pushing boundaries MODERATOR: Mario Baez
	14:30-15:10	40	Jeroen Siero Associate Professor, UMCU, Utrecht	Silent MRI using an ultra-sonic gradient coil
	14:50-15:10	20	Vanja Curcic	From microscopy data to hemodynamic simulations: a vascular graph approach to understand the fMRI signal formation
	15:10-15:30	20	Marius Burman Ingeberg	Estimating the viscoelastic properties of the human brain using intrinsic MRE and nonlinear inversion at 7T
	15:30-15:50	20	Emiel C.A. Roefs	Velocity selective Arterial Spin Labelling at 7T
	15:50-16:10	20		BREAK INTRO SPEAKER: Alex Bhogal
	16:10-17:00	50	Jurgen Claassen , Licensed geriatrician, Associate Professor, Radboud University, Nijmegen	Cerebral autoregulation in the clinic, Spaceflight, Physiology
	17:00 - 18:00			Closing

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Poster Presentations

Not including Late-Breaking Poster abstracts

Chuhan Xiong	Longitudinal changes of BBB permeability in Alzheimer's disease mice: A non-contrast MRI study
Yizhe Hu	Acute changes of cerebral hemodynamics, metabolism and blood-brain barrier permeability in response to aerobic exercise
Ian Driver	Accuracy, repeatability, and sensitivity of breath-hold calibrated fMRI for the mapping of absolute CMRO ₂
Julia Huck	Accuracy of automatic detection of the cerebral arteries inside the Circle of Willis and its application
Melissa Emily Wright	Cerebrovascular changes associated with testosterone level in Polycystic Ovary Syndrome (PCOS)
Yifan Gou	Automatic Rejection based on Tissue Signal (ARTS) for motion-corrected quantification of cerebral venous oxygenation in neonates and older adults
Gabriel Hoffman	Comparing BOLD and ASL for cerebrovascular reactivity (CVR) measurements under hypercapnia
Zihan Wang	T2-relaxation time of arterial spin labelling signal at long post-label delay
Colette C. Milbourn	Multi pulse label delay pCASL-MRI with a semi-automated gas delivery system to measure cerebrovascular reactivity via hypercapnia
Ines Chavarria	Calibrated fMRI sequence with a background-suppressed pCASL/multi-echo BOLD dual-acquisition
Kim Huynh	Imaging-Based Analysis of CVR Changes in Military Snipers Experiencing Repetitive Sub-concussive Impacts
Elisa Zamboni	Direct Imaging of Neuronal Activity (DIANA) in human somatosensory cortex at 3T: Artefact or should we care more about inhibition?
Stefano Moia	Physiopy: a community of physiological data users and Python suite for handling physiological data recorded in MRI settings
Astrid Cancino	Hemodynamic response function and an approximation of cerebrovascular reactivity in acute stroke patients
Gustav Magnussen	High CO ₂ stimulus accuracy in ventilators using additional CO ₂ facilitating CVR imaging in ventilated patients
Hannah Durrant	Comparing Multi-Echo and T2-Prep te-pCASL sequences for measurements of water transport across BBB
Stefano Zappala	Robust Estimation of Oxygen Extraction Fraction and Venous Cerebral Blood Volume Using Flow-Diffusion Modelling Combined with R2* and Perfusion

On-site Committee

Alex Bhogal (Chair)
Wouter Schellekens

Organizing Committee

Lena Vaclavu
Stefano Moia
Mario Gilberto Baez-Yanez
Manus Donahue
Claudine Gauthier

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