9th International Conference on Cognitive Neurodynamics

7-10 December 2024, Hong Kong

Lam Woo International Conference Centre, Hong Kong Baptist University

Plenary Speakers
(being expanded)

Omri Barak (Technion, Israel)

Tim Buschman (Princeton, USA)

Dante R. Chialvo (UNSAM, Argentina)

Jinqiao Duan (GBU, China)

Gustavo Deco (UPF, Spain)

Tomoki Fukai (OIST, Japan)

Jose M. Delgado Garcia (UPO, Spain)

Martin A. Giese (University Clinic Tübingen, Germany)

Peter beim Graben (BCCN Berlin, Germany)

Yike Guo (HKUST, Hong Kong)

Claus C. Hilgetag (UKE Hamburg, Germany)

Markus Lappe (University of Muenster, Germany)

Klaus Linkenkaer-Hansen (VU Amsterdam, Netherlands)

Taro Toyoizumi (RIKEN, Japan)

Alessandro E.P. Villa (U Lausanne, Switzerland)

Rubin Wang (HDU, China)

Ed X. Wu (HKU, Hong Kong)

Dezhong Yao (UESTC, China)

Wing Ho Yung (CityU, Hong Kong)

Xinian Zuo (BNU, China)

Chair & Cochair
Changsong Zhou (HKBU)
Rubin Wang (HDU)

Local Organizing Committee:
Alan Fung (CityU)
Guang Ouyang (HKU)
Xiaochuan Pan (ECUST)
Qianyuan Tang (HKBU)
Liang Tian (HKBU)
Yihong Wang (ECUST)

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Online Registration

www.iccnd.com

Regular Payment Deadline is Nov 15, 2024

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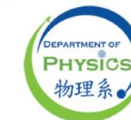
Centre for Nonlinear Studies

ICCN2024 Schedule (*Tentative, Updated on 15 Nov 2024*)
Registration & Lab Tour at HKBU LSIC: Dec 7 (PM), Conference: Dec 8-10, 2024

DAY 1 (Dec 8)		DAY 2 (Dec 9)		DAY 3 (Dec 10)	
8:30-9:00 Openning remarks					
Cognitive Flexibility 9:00-9:40 IT(1): Wing Ho Yung (CityU HK) 9:40-10:20 IT(2): Tim Buschman (Princeton)		*fMRI Experiment and Data* 9:00-9:40 IT(7): Ed Wu (HKU) 9:40-10:20 IT(8): Xinian Zuo (BNU)		*Brain Imaging and Modulation* 9:00-9:40 IT(14): Dezhong Yao（UESTC） 9:40-10:20 IT(15): Yike Guo (HKUST)	
10:20-10:40 Photo taking and Tea break (1)		10:20-10:40 Tea break (3)		10:20-10:40 Tea break (5)	
Critical/Complex Neural Dynamics 10:40-11:20 IT(3): Dante R. Chialvo (UNSAM) 11:20-12:00 IT(4): Klaus Linkenkaer-Hansen (VU Amsterdam)		*Neural Dynamics in Cognitive Processing* 10:40-11:20 IT(9): Jose M. Delgado Garcia (U Pablo de Olavide) 11:20-12:00 IT(10): Tomoki Fukai (RIKEN CBS)		*Computational Neural Dynamics* 10:40-11:20 IT(16): Omri Barak (Technion) 11:20-12:00 IT(17): Taro Toyoizumi (RIKEN CBS)	
12:00-14:00 Lunch (1)		12:00-14:00 Lunch (2)		12:10-14:00 Lunch (3)	
14:00-14:25	PIT 1 James A ROBERTS (QIMR Berghofer)	14:00-14:25	PIT 10 ZHOU Changsong (HKBU)	14:00-14:25	PIT 16 WANG Jin (CAS Wenzhou/Stony Brook)
	PIT 2 GUO Daqing (UESTC)		PIT 11 YU Yuguo (Fudan)		PIT 17 ZHANG Tielin (CAS)
	PIT 3 XU Peng (UESTC)		PIT 12 LIU Quanying (SUSTech)		PIT 18 MI Yuanyuan (Tsinghua)
14:25-14:50	PIT 4 LI Songting (Shanghai JiaoTong)	14:25-14:50	PIT 13 WANG Rong (Xi'an JiaoTong)	14:25-14:50	PIT 19 GAO Ting (HUST)
	PIT 5 WANG Yihong (ECUST)		PIT 14 HUANG Zigang (Xi'an JiaoTong)		PIT 20 CHEN Guozhang (PKU)
	PIT 6 Alex LEONG (HKU)		PIT 15 OUYANG Guang (HKU)		PIT 21 Alan FUNG (CityU HK)
14:50-15:15	PIT 7 HU Yu (HKUST)	14:50-15:10	PCT 10 LIU Chen (Tianjin Univ)	14:50-15:10	PIT 22 SONG Zhuoyi (Fudan Univ)
	PIT 8 PAN Xiaochuan (ECUST)		PCT 11 WU Siqiao (HKU)		PIT 23 Agnès GRUART (Pablo de Olavide Univ)
	PIT 9 Carl TASWELL (Brain Health Alliance)		PCT 12 HAN Dingding (Fudan Univ)		PCT 16 TOMODA Yuki (Fukuoka Institute of Technology)
15:15-15:35	PCT 1 LU Meng (PKU)	15:10-15:30	PCT 13 LI Zongsheng (CUHK, Shenzhen)	15:10-15:30	PCT 17 Adam CRAIG (HKBU)
	PCT 2 LI Le (Northwestern Polytechnical University)		PCT 14 LI Yingzhe (HKU)		PCT 18 PENG Kaining (SUSTech)
	PCT 3 YU Ying (Beihang)		PCT 15 FAN Denggui (UST Beijing)		PCT 19 XIAO Yuchen (Westlake Univ)
15:35-15:55	PCT 4 XIA Yunman (Fudan)	15:30-15:50 Tea break (4)		15:30-15:50 Tea break (6)	
	PCT 5 LONG Yujie (SISU)				
	PCT 6 LIU Xiaotong (Beihang)				
15:55-16:15	PCT 7 ZHUO Yiran (Fudan)	*Neural Dynamics: From Perception to Mind* 15:50-16:30 IT(11): Markus Lappe (U Münster) 16:30-17:10 IT(12): Gustavo Deco (UPF Barcelona) 17:10-17:50 IT(13): Alessandro E.P. Villa (U Lausanne)		*From Neural Dynamics to Brain Organization Principles* 15:30-16:10 IT(18): Jinqiao Duan (Great Bay Univ) 16:10-16:50 IT(19): Claus C. Hilgetag (UKE Hamburg) 16:50-17:30 IT(20): Rubin Wang (ECUST)	
	PCT 8 WANG Nizhuan (PolyU HK)				
	PCT 9 ZHOU Lv (Xi'an Jiaotong)				
16:15-16:35 Tea break (2)					
Neural Representation 16:35-17:15 IT(5): Peter beim Graben (BTU Cottbus-Senftenberg) 17:15-17:55 IT(6): Martin A. Giese (U Tübingen)				17:35-18:00 Closing remarks	
18:00-18:30 Shuttle bus to restaurant 18:30-21:30 Banquet		18:00-20:30 Poster session and Reception			

IT: Invited Talk (40 mins); PIT: Parallel-session Invited Talk (25 mins); PCT: Parallel-session Contributed Talk (20 mins).

Plenary Talks

DAY 1 (8 Dec 2024, Sun)

Session I: Cognitive Flexibility

- IT1, Wing Ho Yung (City University of Hong Kong, Hong Kong) - "Processing of numerosity perception in rats"
- IT2, Tim Buschman (Princeton University, USA) (online) - "The geometry of cognitive flexibility"

Session II: Critical/Complex Neural Dynamics

- IT3, Dante R. Chialvo (Universidad Nacional de San Martin, Argentina) - "Life at the edge: complexity and criticality in biological function"
- IT4, Klaus Linkenkaer-Hansen (Vrije Universiteit Amsterdam, Netherlands) - "Excitation/inhibition balance as a multi-scale mechanism regulating brain function in health and disease"

Session III: Neural Representation

- IT5, Peter beim Graben (Brandenburg University of Technology Cottbus-Senftenberg, Germany) - "A neurodynamical account to Kant's philosophical aesthetics"
- IT6, Martin A. Giese (University of Tübingen, Germany) - "Dynamic Neural Representations in Social Perception"

DAY 2 (9 Dec 2024, Mon)

Session I: fMRI Experiment and Data

- IT7, Ed X. Wu (The University of Hong Kong, Hong Kong) - "Optogenetic fMRI dissection of large-scale brain circuits and functions"
- IT8, Xinian Zuo (Beijing Normal University, China) - "The Chinese Color Nest Project: A retrospective and envisage"

Session II: Neural Dynamics in Cognitive Processing

- IT9, Jose M. Delgado Garcia (Universidad Pablo de Olavide, Spain) - "Functional states of prelimbic and related circuits during the acquisition of a GO/noGO task in rats"
- IT10, Tomoki Fukai (RIKEN Center for Brain Science, Japan) - "Hippocampal mechanisms linking spatially, temporally, and semantically related memories"

Session III: Neural Dynamics: From Perception to Mind

- IT11, Markus Lappe (University of Münster, Germany) - "Perception of non-rigid motion and instability of spatial perception"
- IT12, Gustavo Deco (Universitat Pompeu Fabra Barcelona, Spain) (online) - "The Thermodynamics of Mind"
- IT13, Alessandro E.P. Villa (University of Lausanne, Switzerland) - "Brain dynamics: a path to investigate the computational power of human mind"

DAY 3 (10 Dec 2024, Tue)

Session I: Brain Imaging and Modulation

- IT14, Dezhong Yao (University of Electronic Science and Technology of China, China) - "Musical Neuromodulation 3.0"
- IT15, Yike Guo (The Hong Kong University of Science and Technology, Hong Kong) - "TBC"

Session II: Computational Neural Dynamics

- IT16, Omri Barak (Technion - Israel Institute of Technology, Israel) - "Learning from learning systems"
- IT17, Taro Toyoizumi (RIKEN Center for Brain Science, Japan) - "The edge of chaos, avalanches, and probabilistic sampling in randomly connected networks"

Session III: From Neural Dynamics to Brain Organization Principles

- IT18, Jinqiao Duan (Great Bay University, China) - "Early Warning Indicators for Critical Transitions in Stochastic Dynamical Systems"
- IT19, Claus C. Hilgetag (University Medical Center Hamburg-Eppendorf, Germany) - "A Connectomic Hypothesis for the Hominization of the Brain"
- IT20, Rubin Wang (East China University of Science and Technology, China) - "Brain works principle followed by neural information processing"

Parallel sessions

DAY 1 (8 Dec 2024, Sun)

Parallel Session I: Neural Dynamics, Theory and Modeling (1)

- PIT 1 James A Roberts (QIMR Berghofer) - "Modelling brain activity on long time scales"
- PIT 4 Li Song Ting (Shanghai Jiaotong) - "Timescale localization and signal propagation in the large-scale primate cortex"
- PIT 7 Hu Yu (Hong Kong University of Science and Technology) - "How recurrent interactions shape the dimension and geometry of neuron population activity and the transition to chaos"
- PCT 1 LU Meng (Peking University) - "A Riemannian Geometric Framework for Intelligence and Consciousness"
- PCT 4 XIA Yunman (Fudan University) - "Identification and simulation of task-state brain functional connectivity linking to behavioral symptoms: A use case for brain-computer simulations in the Digital Twin Brain model"
- PCT 7 ZHUO Yiran (Fudan University) - "Microssacade Enhances Ability of Drosophila to Detect High Spatial Frequency Visual Information"

Parallel Session II: Neural Information and Computational Mechanisms (1)

- PIT 2 Guo Daqing (University of Electronic Science and Technology of China) - "Building efficient brain-like AI models based on biological-informational co-constraints"
- PIT 5 WANG Yihong (East China University of Science and Technology) - "Neurodynamical modeling of the three-dimensional spatial activity pattern of grid cell and head-direction cell"
- PIT 8 PAN Xiaochuan (East China University of Science and Technology) - "A recurrent network model of prefrontal cortex for category learning"
- PCT 2 LI Le (Northwestern Polytechnical University) - "Brain Frontal Activation and Motor Cortex Connectivity in Dual-Task Performance Using combined EEG and fNIRS analysis"
- PCT 5 LONG Yujie (Shanghai International Studies University) - "Functional Brain Networks and EEG Microstate Dynamics During Light Sleep: An EEG-fMRI Study"
- PCT 8 WANG Nizhuan (The Hong Kong Polytechnic University) - "EEG Emotion Copilot: Pruning LLMs for Emotional EEG Interpretation with Assisted Medical Record Generation"

Parallel Session III: Clinical Neuroscience, Neurological Disorders and Neuromodulation

- PIT 3 Xu Peng (University of Electronic Science and Technology of China) - "Close-loop Brain Computer interface for modulation of emotional disorders"
- PIT 6 Alex Leong (The University of Hong Kong) - "Optogenetic Functional MRI Interrogation of Brain Networks and Functions"
- PIT 9 Carl Taswell (Brain Health Alliance) - "A Practical Clinical Interpretation of Neural

Dynamics for the EPSMS Clinical Trial"
- PCT 3 YU Ying (Beihang University) - "Dynamic modeling in Neurological Disease Regulation: Bridging Mechanisms and Therapeutic Strategies"
- PCT 6 LIU Xiaotong (Beihang University) - "State transitivity in dynamic brain network model during epileptic seizure"
- PCT 9 ZHOU Lv (Xi'an Jiaotong University) - "Flowing connector hubs in patients with Parkinson's Disease"

DAY 2 (9 Dec 2024, Mon)

Parallel Session I: Neural Dynamics, Theory and Modeling (2)

- PIT 10 Changsong Zhou (Hong Kong Baptist University) - "Neural criticality"
- PIT 13 Wang Rong (Xi'an JiaoTong University) - "Stiffness and damping of brain complex networks at resting state"
- PCT 10 Liu Chen (Tianjin University) - "A Multi-Scale Model in Parkinson's Disease: BOLD Signal Generation and Parameter Analysis for Mechanistic Insights"
- PCT 13 LI Zongsheng (The Chinese University of Hong Kong, Shenzhen) - "Inferring Spatiotemporal Causal Interactions in the Human Brain: Virtual Perturbation to a Data-Driven Surrogate Model"

Parallel Session II: Neural Information and Computational Mechanisms (2)

- PIT 11 Yu Yuguo (Fudan University) - "Visual Pinwheel Center Act as Geometric Saliency Detector"
- PIT 14 Huang Zigang (Xi'an JiaoTong University) - "Acetylcholine optimizes perception by tuning neural criticality"
- PCT 11 WU Siqiao (The University of Hong Kong) - "Investigating the Relationship between Rhythmicity Processing and Language Processing"
- PCT 14 LI Yingzhe (The University of Hong Kong) - "Unveiling the Dynamics of Working Memory Through Behavioral Paradigms and Neural Indicators"

Parallel Session III: Neurological Disorders and Neuromodulation

- PIT 12 Liu Quan Ying (Southern University of Science and Technology) - "Data-driven surrogate model guides neuromodulation for controlling neural dynamics"
- PIT 15 Ouyang Guang (The University of Hong Kong) - "Sketching the relationships between the spontaneous neural dynamic activity and the brain responses"
- PCT 12 HAN Dingding (Fudan University) - "A Multi-Scale Information Fusion Approach for Brain Network Construction in Epileptic EEG Analysis"
- PCT 15 FAN Denggui (University of Science and Technology Beijing) - "Towards an optimal stimulation therapy for memory consolidation"

DAY 3 (10 Dec 2024, Tue)

Parallel Session I: Neural Dynamics, Theory and Modeling (3)

- PIT 16 Jin Wang (Wenzhou Institute/Stony Brook University) - "Landscape and flux of Learning/Memory and Decision Making"
- PIT 19 Ting Gao (Huazhong University of Science and Technology) - "Inverse Problems and Critical Transitions in Brain Science"
- PIT 22 Song Zhuoyi (Fudan University) - "Thinking about neural coding from a stochastic adaptive sampling point of view"
- PCT 17 Adam CRAIG (Hong Kong Baptist University) - "Balancing preservation of functional connectivity with discovery of regional heterogeneity in personalized whole-brain Ising models"

Parallel Session II: Neural Information and Computational Mechanisms (3)

- PIT 17 Zhang Tielin (CAS Institute of Automation) - "Neuromorphic Chips Utilizing Brain-Inspired Spiking Neural Networks"
- PIT 20 Chen Guozhang (Peking University) - "Learning in a realistic V1 model with diverse neuron types and data-driven connections"
- PIT 23 Agnès GRUART (Pablo de Olavide University) - TBC
- PCT 18 PENG Kaining (Southern University of Science and Technology) - "Investigating evolutionary differences of whole-brain effective connectivity through neural perturbational inference"

Parallel Session III: Memory/Learning Dynamics in Neural Networks
- PIT 18 Mi Yuanyuan (Tsinghua University) - "Learning and Processing the Ordinal Information of Temporal Sequences in Recurrent Neural Circuits"
- PIT 21 Alan Fung (City University of Hong Kong) - "Release Probability Variation Modulates the Dynamics of Continuous Attractor with Short-term Synaptic Depression"
- PCT 16 TOMODA Yuki (Fukuoka Institute of Technology) - "Formation of functionally differentiated structure in recurrent neural networks through mutual information learning"
- PCT 19 XIAO Yuchen (Westlake University) - "Neurophysiological and computational mechanisms of non-associative and associative memories during complex human behavior"