

COMPUTATIONAL NEUROSCIENCE IN MNESYS

February 3, 2025

Aula Disegno

Piazza Leonardo Da Vinci, Pavia



Registration form

8.30-9.00 **Reception and registration**

9.00-9.20 **Institutional welcome-** Delegate to Research (Federico Forneris UNIPV) and Director of Center for Health and Technology (Riccardo Bellazzi UNIPV)

9.20-9.50 **Introduction-** *Computational neuroscience in MNESYS and The computational framework for multiscale brain modelling* (Egidio D'Angelo and Sergio Martinoia, UNIPV, UNIGE)

9.50-10.30 **Plenary lecture-** *Strategies for inferring synaptic plasticity rules from data*
Nicolas Brunel- Duke University and Università Bocconi

10.30-11.00 *Coffee break and posters on display*

11.00-13.00 **Multi-scale brain modelling** (Chair Egidio D'Angelo)

- 11.00-11.20 *Models and simulations of cellular functions in the cerebellar microcircuit* (Claudia Casellato UNIPV/S2.WP2)
- 11.20-11.40 *Multimodal analysis of human hippocampal and cortical activity* (Jonathan Mapelli UNIMORE/S6)
- 11.40-12.00 *Brain Digital Twins in neurological diseases* (Fulvia Palesi UNIPV/S2.WP2)
- 12.00-12.20 *Integrated modelling approaches for brain connectomics* (Fabrizio Esposito UNICAMPANIA/S2.WP4)

- 12.20-12.40 *Multiscale brain networks for sensorimotor functions: from physiology to models* (Francesco Vaccari UNIBO/S4.WP3)
- 12.40-13.00 *Coupling experiments and mathematical models for investigating the computational properties of neuronal ensembles* (Paolo Massobrio UNIGE/S2.WP2)



13.00-14.20 Light lunch and posters on display (Cortile delle Magnolie)

14.20-14.40 **Interaction** of MNESYS with EBRAINS-Italy (Rosanna Migliore CNR)

14.40- 16.20 **System-level modelling and neuro-AI** (Chair Sergio Martinoia)

- 14.40-15.00 *Personalized cortical models for early dementia diagnosis* (Alberto Mazzoni (SSSA/S6.WP2)
- 15.00-15.20 *Biomedical foundation models and generative AI for brain modeling* (Nicola Toschi UNITOV/ S2.WP2)
- 15.20-15.40 *AI solutions to investigate brain networks* (Isabella Furci e Vito Pastore UNIGE/ S2.WP2)
- 15.40-16.00 *Simulation of cognitive processes through brain-inspired neurocomputational models* (Mauro Ursino UNIBO/ S4.WP4)
- 16.00-16.20 *Embodiment of somatosensory models* (Mariangela Filosa SSSA/ S4.WP4)

16.20-16.50 Coffee break and posters on display

16.50- 18.00 **Round tables and conclusions** - open issues and perspectives (Chairs Egidio D'Angelo, Sergio Martinoia, Claudia Casellato, Paolo Massobrio, Fabrizio Esposito)

Local MNESYS organisation committee: Egidio D'Angelo, Claudia Casellato, Simona Tritto

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