

# Math & Brain seminars



## Matematica e Cervello

**Tuesday 18/03/25 - 17:30**  
**Room 1A150**

**Prof. Samir Suweis**

*Associate Professor at the  
Department of Physics  
and Astronomy "Galileo Galilei",  
University of Padova*



## **Whole brain model for neural activity at criticality**

In this seminar, we will show how stochastic models of interacting particles can reproduce whole-brain neural activity patterns measurable through functional Magnetic Resonance Imaging (fMRI) or Electroencephalography (EEG). We will demonstrate how collective properties of the system, such as neural avalanches or synchronized oscillations, can emerge in these models at their critical point. Finally, we will explore possible medical applications of these models, including stroke recovery assessment and the design of transcranial stimulation protocols.

### **Organizers**

**S. De Marchi, W. Erb, M. Formentin, V. Franceschi,  
F. Marchetti, R. Monti, F. Rinaldi**