



ICTP | International Centre for Theoretical Physics
SAIFR | South American Institute for Fundamental Research

Campus of IFT-UNESP – São Paulo, Brazil

ANETA KOSESKA
Max Planck I. for
Neurobiology of Behavior, Germany
Cellular Computations and Learning



RUBÉN MORENO BOTE
U. Pompeu Fabra, Spain
Artificial neural networks



March 15 – 26, 2027

SCHOOL ON BRAIN DYNAMICS

BARD ERMENTROUT
University of Pittsburgh, USA
Nonlinear dynamics in neuroscience



XIAO-JING WANG
New York University, USA
Dynamics of cognitive processes



ELIF KOKSAL
Inria Lyon Centre, France
Dynamical systems theory



MAURO COPELLI
Federal U. of Pernambuco, Brazil
Criticality in neural circuits



Brain dynamics underlies brain function in neural information processing and computation, from single neurons processing synaptic inputs to large-scale neuronal circuits integrating information. A central goal in theoretical neuroscience, and the focus of this school, is to unravel the fundamental mechanisms of exactly how dynamics subserves function – e.g., how neural circuits perform computations, implement memory – and how this is disrupted in brain disorders. The first week of the school will introduce students to the principles of brain dynamics and mathematical models that have been used to describe them, while the second week will explore recent key advances that have applied these principles to understand brain dynamics and behavior.

The goal of the school is to provide students from South America with the tools to face key challenges in theoretical neuroscience by providing them with fundamental theory and techniques from dynamical systems theory, biological and artificial neural systems, as well as examples of state-of-the-art research, and connecting them to international researchers who have been developing key work in the area. The school is aimed at Master's and PhD students from physics, mathematics, engineering, and biological sciences who are working or would like to work in neuroscience projects. Highly motivated students at the end of their undergraduate studies and postdoctoral researchers are also welcome to apply. To foster exchange and discussions, we strongly encourage participants to submit an abstract for a poster presentation.

Application deadline:
December 3, 2026

**Online application and
more information:**
ictp-saifr.org/sbd2027



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