XXIX School of Physiology and Biophysics

COMPUTATIONAL APPROACHES IN SYSTEMS NEUROPHYSIOLOGY

June 16-18, 2026

Venue

University of Rome Tor Vergata, Via Lucullo 11 (4th floor, int.10), Rome

Purpose and Training Objectives

The XXIX School of Physiology and Biophysics of the Italian Physiological Society is a three-day (one full day and two half days) introductory course designed to provide participants with theoretical and practical expertise in computational approaches to systems neurophysiology. The program spans a broad set of methods for analyzing behavioral, electrophysiological, and neuroimaging data, with applications to human motor control, sensory processing, and psychophysics.

The course combines lectures with hands-on tutorials in which participants will analyze real experimental datasets using MATLAB and R. Tutorial activities include EMG and kinematic processing, MRI and eye-movement data analysis, and computational psychophysics.

Organization

The school is organized by a team of neurophysiologists from the University of Rome Tor Vergata, coordinated by Francesco Lacquaniti. The program includes an opening lecture introducing the rationale for computational approaches in systems neurophysiology, followed by a series of eight thematic lectures covering topics such as computational analysis of human locomotion, muscular and kinematic synergies, vestibular system computation, eye-movement analysis, structural and functional MRI, psychophysical modeling, and quantitative neuromodulation. These lectures are complemented by four keynote lectures addressing neural coding of joint action, multiscale brain modeling and digital twins, machine-learning approaches to spinal pattern generators, and multimodal quantitative neurophysiology applied to neurostimulation.

Most lectures are accompanied by hands-on tutorials, during which participants will analyze real experimental datasets using MATLAB and R, with sample datasets and analysis scripts provided. Throughout the course, tutors will be available to support participants, encourage discussion, and facilitate scientific interaction with the lecturers.

Participation

The school is open to a maximum of 20 young researchers, including Ph.D. students, postdocs, and early-career researchers. A participation fee of € 250 including single-room accommodation at the venue for the nights of June 16 and 17 (maximum 13 participants) or €100 not including accommodation is required to partially cover expenses for coffee breaks, a lunch, and a social dinner on June 17. For participants who are not regular members of the Italian Physiological Society, this fee also includes the contribution for becoming a supporting member of the Society for year 2026, as required by the Italian law on non-profit associations effective starting January 1st 2026.

Applicants must submit:

- A one-page CV (maximum 2000 characters)
- A motivation letter explaining their interest in attending the course

Applications must be submitted online through the designated website between April 8 and May 4, 2026. Selection will be based on CV and age. Successful applicants will be notified by May 15 and given instructions for advance payment of the participation fee (by credit card only) on the SIF website.

Two travel grants in the amount of € 300 each are made available. To participate in the award, a justification for request must be included in the motivation letter. Grant notification will be communicated by May 15.

For further inquiries, please contact the school organizers via email at sif.sfb.2026@gmail.com.