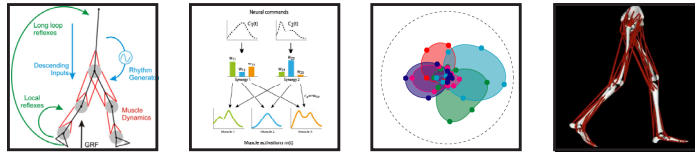


## WORKSHOP

# MUSCLE SYNERGIES: FROM NEUROPHYSIOLOGIC EVIDENCE TO CLINICAL TOOL



The hypothesis of modular control of movement is becoming more and more accepted in the neurophysiologic community. Experiments in animals and humans have shown that the complex muscular activity can be explained by the activation of small ensembles of muscle groups, called muscle synergies or modules. These evidences opened the scenario to a wide range of possible neurophysiological theories, and could lead to interesting clinical applications for the diagnosis and rehabilitation of neurological impairments. Nevertheless, many questions are still unsolved, and time is ripe for debating:

- Does modular behavior reflect neural strategy?
- How is modular control affected by pathologies?
- Which is the role of afference in regulating modular behavior?
- What kind of interventions may be envisioned?

These and more issues will be discussed in this workshop, which brings together leading researchers to show the most recent evidences and techniques, with a special eye to the possible future applications in the pathologic scenario.

This workshop is addressed to clinicians, therapists, engineers and neurophysiologists willing to understand the potential of the analysis of modular behavior, as a tool to extract meaningful information from muscular activity.

## TALKS



Yuri Ivanenko

*“Plasticity and different solutions to reorganize muscle patterns during gait”*

Dario Farina



Silvestro Micera

*“Upper and lower limb muscle synergies: lessons learnt and new ideas for neurorehabilitation”*



Andrea D'avella

*“Identifying muscle synergies from EMGs: evidence, concerns, and application to neurorehabilitation of decomposition approaches”*

Marco Molinari

*“The clinical future of muscle synergies. Goals and challenges”*



### HOW TO ATTEND THE WORKSHOP

This half-day Workshop is part of the 2012 International Conference on Neurorehabilitation (ICNR2012) activities. The Workshop will be held on Saturday, Nov 17. Conference takes place in Toledo from Nov 14 to 16. To register for the workshop, please visit the ICNR2012 website: [www.icnr2012.org](http://www.icnr2012.org).