



UNIVERSITÀ DI PARMA

Dipartimento di Scienze Matematiche, Fisiche ed Informatiche - DSMFI

SEMINARIO DI DIPARTIMENTO

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Neuroscience, neurophysiology and interdisciplinarity: the past, the present and the future.

Abstract: One of the most prominent scientists in the last decades, Rodolfo Llinas, claimed that “brains serve for moving”. Indeed, brains are certainly the most complex and mysterious machines for generating movement. Nonetheless, the relevance of movement and motor functions of the brain has been often neglected whenever science attempted to deal with the apparently more intriguing and complex problem of revealing the mechanisms underlying complex perceptual and cognitive functions. Thanks to the discovery of visuomotor and mirror neurons, it is now widely accepted that many of the most extraordinary abilities characterizing the human brain depend, at least partly, on the same functions of the “motor brain”. Indeed, motor representations underlying our own behaviour play a role in the perceptual processing of observed objects, of the space around us, and of other’s actions. However, despite the increasing development of the tools and techniques for investigating brain functioning, the brain has been mainly studied, since now, as a motionless entity, because stillness was a necessary condition for applying all the techniques (fMRI, EEG, single-neuron recording, etc.) available to measure its functioning. Today, an ethological approach to the understanding of the brain, encompassing its motor and cognitive functions, cannot overlook the validation and extension of the investigation to the natural environment. This is now feasible by exploiting the recent technological developments in the recording and analysis of the neuronal signal in order to establish a “wireless neurophysiology”, capable of combining experimental control with the richness and variety of natural behaviour. The goal of this lecture will consist in tracing the emerging developmental trend of neurophysiological research in non-human primates, from classical approaches to the current possibilities, even trying to figure out the (desirable) future developments.



Giovedì 14 dicembre – ore 16:30
Aula Newton – Plesso Fisico