

# ***School of Physiology and Biophysics 2015***

## ***Molecular and cellular biophysics of excitable cells***

*Società Italiana di Fisiologia*

*Pavia 29/06/2015 - 02/07/2015*

presso le Unità di Fisiologia, Via Forlanini 6, Pavia

### **Organizer**

*Prof. Egidio D'Angelo - Dipartimento di Scienze del Sistema Nervoso e del Comportamento*

### **Co-organizers**

*Prof. Mauro Toselli / Jacopo Magistretti - Dipartimento di Biologia e Biotecnologie*

*Prof. Roberto Bottinelli / Vittorio Ricci - Dipartimento di Medicina Molecolare*

### **Day 1 – 29/06/2015**

***(Aula Grande - Unità di Neurofisiologia, Dip Scienze sistema nervoso)***

#### **8.30-9.30      *Opening Lecture***

*Frontiers of Physiology: Neurons, circuits and robots (D'Angelo E)*

#### **10.00-13.00    *Electrophysiology and imaging : methods***

*Patch-clamp and calcium imaging recordings (Masetto S, Moccia F)*

*Two-photon imaging recordings (Mapelli J, Gandolfi D)*

*Extracellular recordings and MEA (Biella G, Mapelli L)*

#### **14.30-18.30    *Laboratory of electrophysiology and imaging***

*- Laboratory of sensory physiology (Prigioni I, Perin P, Russo GC, Manca M, Spaiardi P, Tavazzani E)*

*- Laboratory patch-clamp and calcium imaging (Tanzi F, Zuccolo E, Moccia F, Prestori F, Locatelli F, Soda T)*

*- Laboratory of two-photon imaging (Tognolina M)*

*- Laboratory of MEA recordings (De Propris L, Moscato L, Mapelli L)*

### **Day 2 – 30/06/2015**

***(Aula Grande - Unità di Neurofisiologia, Dip Scienze sistema nervoso)***

#### **8.30-11.45    *Parameter extraction from physiological experiments***

*Analysis of voltage-clamp data (Toselli M)*

*Analysis of synaptic transmission (Magistretti J)*

*Analysis of local field potentials and spike sorting (Biella G, Mapelli L)*

#### **12.00-13.00    *Opening lecture***

*Investigating neurons with light (Ratto GM)*

#### **14.30-18.30    *Laboratory of voltage-clamp data analysis*** (Toselli M, Magistretti, Cesana E, Talpo F, Raspanti A)

### **Day 3 – 01/07/2015**

*(Aula A – Unità di Fisiologia Umana, Dip Medicina molecolare)*

**8.30-9.30**      **Opening lecture**

*Spiking networks for closed-loop robotic simulations of microcircuit functions (Pedrocchi A , Casellato C)*

**10.00-13.00**    **Computational modeling of cells and circuits**

Single neuron models (Masoli S)

Synaptic models (Nieus T)

Network models (Casali S)

**14.30-18.30**    **Laboratory of NEURON programming** (Masoli S, Rizza M, Casali S, Iavarone E)

### **Day 4 – 02/07/2015**

*(Aula Grande - Unità di Neurofisiologia, Dip Scienze sistema nervoso)*

**8.30-9.30**      **opening lecture**

*Structure and function of the myosin motor in striated muscle (Bottinelli R)*

**10.00-13.00**    **Molecular tagging :**

Analysis of cytoplasmic protein aggregates in physiology and pathophysiology (Ricci V, Vitali A)

Skeletal muscle plasticity: functional analysis at cellular and molecular level (Canepari M)

Skeletal muscle plasticity: proteomic & intracellular signalling pathways analyses (Pellegrino MA)

**14.30-18.30**    **Laboratories:**

- *Laboratory of muscle biophysics*: isolated skeletal muscle fibres and in vitro motility assays (Canepari M, Agoni V, Bardi E)

- *Laboratory of proteomics and signalling*: 2D proteome maps, gene expression by RT-PCR, Western-blotting (Pellegrino MA, Brocca L, Bardi E, Laforenza U, Bottino C)