

# SCIENTIFIC PROGRAM

## INTERNATIONAL CONFERENCE:

### NEW IDEAS, PERSPECTIVES AND APPLICATIONS IN FUNCTIONAL NEUROSUGERY

STATE OF THE ART OF THE DEEP BRAIN STIMULATION  
OF THE PEDUNCULOPONTINE TEGMENTAL NUCLEUS (PPTg)  
(4<sup>th</sup> SYMPOSIUM)



DECEMBER 18<sup>th</sup>-20<sup>th</sup> 2014  
ROMA

\* The Logo of the Conference represents the Eternal Father - Fresco Painting of Raffaello Sanzio's School (1517-1520) detached in 1860 from the Chapel of St. John of the Magliana Castle, and currently exposed at the Louvre Museum in Paris.

**Pontifical University of St. Thomas Aquinas  
(Angelicum)  
Main Hall - St. John Paul II**

• 15-17: Overview of the technology and future directions of Deep Brain Stimulation

**Chairmen:** J. Krauss (University of Hannover, Germany),  
F. Viselli (St. John the Baptist Hospital, Italy)

**D.M. Moffitt**, Boston Scientific Neuromodulation (USA):  
*Technical Aspects of the Vercise™ Deep Brain Stimulation System*

**S. Manker**, Medtronic Eindhoven Design Centre Site (USA):  
*Technological advances and clinical implications*

**N. Hofkens**, Product Manager Neuromodulation, St. Jude Medical Inc. (USA):  
*Innovations in Deep Brain Stimulation: St. Jude Medical's vision for the future*

• 18-20: Plenary lectures on Structure and Functions of the Basal Ganglia  
**Chairmen:** E. Scarnati (Dept. DISCAB, University of L' Aquila, Italy) and  
P. Mazzone (CTO Hospital, ASL Roma C, Italy)

**P. Bolam** (University of Oxford, UK): *Functional Organisation of the Basal Ganglia*

**A. Nambu** (National Institute for Physiological Sciences, Okazaki, Japan):  
*Motor functions of the Basal Ganglia*

**W. Schultz** (University of Cambridge, UK):  
*Non-motor functions of the Basal Ganglia*



**Magliana Castle - St. John the Baptist Hospital - Hall Julius II**

• 8.30: Plenary lecture on Parkinson's disease:  
**P. Riederer** (University of Wuerzburg, Germany)  
*Loss of Innovation in Neuropharmacotherapy*

**4<sup>th</sup> International Symposium on the Deep Brain  
Stimulation of the PPTg area: State of the Art**

**Session I**

**Chairmen:** E. Garcia-Rill (University of Arkansas for Medical Sciences, Little Rock, USA), J. Krauss (University of Hannover, Germany),  
E. Scarnati (Dept. DISCAB, University of L' Aquila, Italy)

- 9.05: **J.Mena-Segovia** (University of Oxford, UK):  
*Neurons, neurotransmitters and connections of the PPTg*
- 9.30: **S. Takakusaki** (Asahikawa Medical University, Asahikawa, Japan):  
*Brainstem control of locomotion and posture*
- 9.55: **J.C. Rothwell** (University College London, London, UK):  
*Reflex effects of PPTg stimulation*
- 10.20: **C.C. McIntyre** (Case Western Reserve University, Cleveland, USA):  
*Characterizing the Biophysics of Deep Brain Stimulation*

• 10.45 -11.00: Break •

**Session II**

**Chairmen:** E. Garcia-Rill (University of Arkansas for Medical Sciences, Little Rock, USA), A. Lozano (Toronto University, Canada),  
P. Mazzone (CTO Hospital, ASL Roma C, Italy)

- 11.00: **E.Garcia-Rill** (University of Arkansas for Medical Sciences, Little Rock, USA): *Waking and the RAS: role of the PPN*
- 11.25: **A. Insola** (CTO Hospital, ASL Roma C, Italy):  
*Somatosensory Evoked Potentials and Deep Brain Stimulation of the PPTg area*
- 11.50: **P. Brown** (University of Oxford, UK):  
*What can recordings from the human PPN region tell us*
- 12.15: **M.D. Johnson** (University of Minnesota, Minneapolis, USA):  
*Computational modeling of Deep Brain Stimulation within the brainstem*

• 12.40 General discussion

• 13.00 -13.30: Break •



### Session III

Chairmen: E. Scarnati (Dept. DISCAB, University of L'Aquila, Italy)  
 J. Mena-Segovia (University of Oxford, UK),  
 G. Broggi (IRCSS Galeazzi, Milan, Italy)

- 13.30: A. Lozano (University of Toronto, Canada):  
*The Deep Brain Stimulation of the PPTg region: a review*
- 13.55: F. Viselli (St. John the Baptist Hospital, Italy):  
*Neurological analysis of Deep Brain Stimulation of the PPTg area: our point of view*
- 14.20: E. Garcia-Rill (University of Arkansas for Medical Sciences, Little Rock, USA):  
*The role of the PPN in neurological and psychiatric disorders*
- 14.45: T. Coyne (University of Queensland, Brisbane, Australia):  
*Advances in understanding function of the human PPN/PPTg*
- 15.05: P. Mazzone (CTO Hospital, ASL Roma C, Italy):  
*What we have learned from the Deep Brain Stimulation of the PPTg area*
- 15.30 General Discussion
- 15.45 Closing of the 4<sup>th</sup> International Symposium on the Deep Brain Stimulation of the PPTg area: state of the art
- 15.45 -16.00: Break •

### Session IV

#### Innovative Topics on Deep Brain Stimulation

Chairmen: V. Visser-Vandewalle (University of Cologne, Germany),  
 J. Krauss (University of Hannover, Germany),  
 V. Di Lazzaro (University Campus-Biomedico, Rome, Italy)

- 16.00: J Krauss (University of Hannover, Germany):  
*Deep Brain Stimulation in dystonia: what's new?*
- 16.25: N.D. Schiff (Weill Cornell Medical College, New York, USA):  
*Central thalamic deep brain stimulation, from proof of concept toward generalizability*
- 16.50: T. Aziz (University of Oxford, UK):  
*The Deep Brain Stimulation of Area 24 for Pain*
- 17.15: P. Arena (DIEEI, University of Catania, Italy):  
*Locomotion-oriented perception in insects and insectoids*
- 17.40: S. Ferraina (University of Rome La Sapienza, Italy):  
*Innovative methods for writing and reading the brain*
- 18.05: A. Priori (University of Milan, Milan, Italy):  
*Adaptive methods in deep brain stimulation*
- 18.30: A. Franzini (IRCSS Besta, Milan, Italy):  
*Discussant Lecture*

• 18.55 End of Session IV •

## Magliana Castle - St. John the Baptist Hospital - Hall Julius II

### Session V

#### Deep Brain Stimulation in Alzheimer's disease

Chairmen: V. Di Lazzaro (University Campus-Biomedico, Rome, Italy),  
 C. Caltagirone (IRCSS Santa Lucia, Rome, Italy),  
 A. Lozano (University of Toronto, Canada)

- 8.30: L. Domenici (University of L'Aquila, Italy):  
*Synaptic dysfunction in Alzheimer's disease*
- 8.55: G. Koch (IRCSS Santa Lucia, Rome, Italy):  
*Neuronal networks involved in dementia*
- 9.20: A. Lozano (University of Toronto, Canada):  
*The Deep Brain Stimulation of Fornix in Alzheimer's disease*
- 9.45: J. Kuhn (University of Cologne, Germany):  
*The Deep Brain Stimulation of Nucleus Basalis of Meynert in Alzheimer's disease*
- 10.10: G. Broggi (IRCSS Galeazzi, Milan, Italy):  
*Discussant Lecture*
- 10.35: Questions from audience
- 10.50 -11.05: Break •

### Session VI

#### Deep Brain Stimulation in Tourette syndrome

Chairmen: M. Porta (IRCCS Galeazzi, Milan, Italy); P. Mazzone (CTO Hospital, ASL Roma C, Italy)

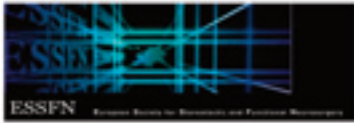
- 11.05: V. Visser -Vandewalle (University of Cologne, Germany):  
*DBS in Tourette syndrome: where are we standing now?*
- 11.30: A.E. Cavanna (University of Birmingham, UK):  
*The selection of patients for Deep Brain Stimulation in Tourette Syndrome*
- 11.55: O. Vilela-Filho (Medical School, Federal University of Goiás, Brazil):  
*Globus pallidus externus deep brain stimulation for Tourette Syndrome.*
- 12.20: D. Servello (IRCCS Galeazzi, Milan, Italy):  
*Deep Brain Stimulation in Tourette Syndrome*
- 12.45: A. Priori (University of Milan, Milan, Italy):  
*The Physiology of Deep Brain Stimulation in Tourette Syndrome*
- 13.10: M. Porta (IRCCS Galeazzi, Milan, Italy):  
*Remarks in Tourette Syndrome: clinical and therapeutical aspects*
- 13.35: A. Lozano (Canada): Discussant Lecture

#### Closing Remarks

**We hope to see you again in Rome in 2018!**

14.00: P. Mazzone (CTO Hospital, ASL Roma C, Italy), E. Scarnati (Dept. DISCAB, University of L'Aquila, Italy), F. Viselli (St. John the Baptist Hospital, Italy)

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**UNIVERSITY OF L'AQUILA**  
DEPARTMENT OF  
BIOTECHNOLOGICAL AND APPLIED CLINICAL SCIENCES



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## Scientific Committee:

P.Mazzone (CTO Hospital, ASL Roma C, Italy) • E.Scarnati (Dept.DISCAB, Univer. of L'Aquila, Italy),  
F.Viselli (St. John the Baptist Hospital, Italy) • P. Riederer (University of Wuerzburg, Germany)  
E-Mail : Mazzone: stereomaz@libero.it • Scarnati: scarnati@univaq.it • Viselli: f.viselli@acismom.it

## Organizing Secretary:

Dr. Valeria Gilestro, Responsabile Ufficio Formazione  
Tel.: +390665596226 • Fax :+390665596484 • Cell.:+393295399006  
Email: v.gilestro@acismom.it • formazione@acismom.it

Associazione dei Cavalieri Italiani del Sovrano Militare Ordine di Malta  
Via L.E. Morselli, 13 • 00148 Roma