

## **FINAL PROGRAM**

# **2<sup>nd</sup> Regional DBS meeting Deep brain stimulation: New Horizons in Neurology and Psychiatry**

**Zagreb, Croatia, May 4<sup>th</sup>-6<sup>th</sup>, 2017**

### **organized by**

University Hospital Dubrava, Zagreb,  
Referral Centre of the Croatian Ministry of Health  
for Sterotactic and Functional Neurosurgery,  
Clinical Department of Neurology, University Hospital Centre, Rijeka  
The Medical school University of Zagreb, and the  
Medical school University of Rijeka, Rijeka, Croatia,  
in association with  
UCL Institute of Neurology,  
Sobell Department of Motor Neuroscience &  
Unit of Functional Neurosurgery, Queen Square, London, UK  
under high Auspices of the Ministry of Health, Republic of Croatia

### **Congress venue:**

**The Westin Zagreb Hotel ([www.westinzagreb.com](http://www.westinzagreb.com))**

**e-mail: [dbs@kbd.hr](mailto:dbs@kbd.hr),**

**updates and meeting information: [www.dbs-savjetnik.hr](http://www.dbs-savjetnik.hr)**

## Dear colleagues,

*It is our great pleasure to invite you to the 2<sup>nd</sup> Regional DBS meeting "Deep brain stimulation: New Horizons in Neurology and Psychiatry" in Zagreb, Croatia, May 4-6, 2017. Deep brain stimulation has developed during the past 30 years as a remarkable treatment option for several brain disorders. DBS has also evolved significantly during the past decade at University Hospital Dubrava Zagreb (Croatia) as the Referral Centre of the Croatian Ministry of Health for Stereotactic and Functional Neurosurgery. This meeting will provide a state-of-the art coverage of current DBS practice and future directions in this region of Europe and in the world. The various topics will be covered by an international faculty of distinguished invited lecturers from London, Shanghai, Grenoble, Ljubljana, Belgrade, Yale, Stockholm, Split, Rijeka and Zagreb.*

*We hope this meeting will be of interest and we look forward to welcoming you in Zagreb.*

Darko Chudy and Vladimira Vuletic

## TOPICS:

- Movement disorders
- Psychiatric illnesses
- Cognition
- Coma
- Genetics
- Neuropsychology
- Neuroradiology
- Neuroscience
- Neuropathology
- Neurobiology



**Zagreb**, capital of the Republic of Croatia, is also its largest city and the cultural, economic, sporting and governmental hub of the country. It is located on the southern slopes of Medvednica Mountain along the banks of the Sava River. Culturally, it is a European city well worth visiting, with its numerous historical monuments and medieval architecture.

**Enjoy your stay in Zagreb, where you can easily meet remarkable people, make new friends and enjoy special moments.**



## **FACULTY**

- **Professor Nenad Bogdanović**, MD, PhD, Department of Geriatric Medicine Oslo University Hospital, Oslo Norway and Karolinska Institutet Stockholm, Sweden
- **Associate Professor Darko Chudy**, MD, PhD, School of Medicine, University of Zagreb, Department of Neurosurgery, University Hospital Dubrava, Zagreb, Croatia
- **Professor Vedran Deletis**, MD, PhD, Laboratory for Human and Experimental Neurophysiology (LAHEN), School of Medicine, University of Split, Croatia and St. Luke's-Roosevelt Hospital New York, USA
- **Dejan Georgiev**, MD, PhD, neurology registrar, Department of Neurology, University Medical Centre Ljubljana, Slovenia, Department of Community Medicine and Rehabilitation, Umeå University, Sweden, & Unit of Functional Neurosurgery, Sobell Department of Motor Neuroscience and Movement Disorders, University College London, UK
- **Professor John Hardy**, PhD, FMedSci, FRS, Department of Molecular Neuroscience, UCL Institute of Neurology, London, United Kingdom
- **Professor Marwan Hariz**, MD, PhD, Unit of Functional Neurosurgery, Sobell Department of Motor Neuroscience and Movement Disorders, UCL Institute of Neurology, London, United Kingdom
- **Academician Ivica Kostović**, MD, PhD, Professor of Anatomy & Neuroscience at the School of Medicine University of Zagreb, Croatian Institute for Brain Research (CIBR), School of Medicine in Zagreb (SMZ)
- **Professor Patricia Limousin**, MD, PhD, Unit of Functional Neurosurgery, Sobell Department of Motor Neuroscience and Movement Disorders, UCL Institute of Neurology, London, United Kingdom



■ **Professor Elena Moro**, MD, PhD, CHU  
Grenoble, Joseph Fourier University,  
Grenoble, France

■ **Professor Zvezdan Pirtošek**, MD, PhD,  
Department of Neurology, University  
Medical Centre, Ljubljana, Slovenia

■ **Professor Marko Radoš**, MD, PhD, School  
of Medicine, University of Zagreb, University  
Hospital Centre Zagreb, Croatia

■ **Professor John Rothwell**, MD, PhD, UCL Institute of Neurology, Sobell  
Department of Motor Neuroscience and Movement Disorders, London,  
United Kingdom

■ **Professor Bomin Sun**, MD, PhD, Department of Functional Neurosurgery,  
Affiliated Ruijin Hospital, Shanghai JiaoTong University School of Medicine,  
Shanghai, China

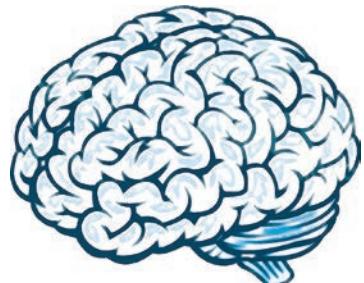
■ **Professor Marina Svetel**, MD, PhD, Neurology clinic, Clinical Center of  
Serbia, Belgrade, Serbia

■ **Professor Nenad Šestan**, MD, PhD, Yale University School of Medicine, Yale  
University, Neuroscience: Kavli Institute for Neuroscience, Sestan Lab, USA

■ **István Valálik**, MD, PhD, Department of Neurosurgery, St. John's Hospital,  
Budapest, Hungary

■ **Associate Professor Vladimira Vuletic**, MD, PhD, School of Medicine in  
Rijeka, University of Rijeka, Department of Neurology, University Hospital  
Centre Rijeka, Croatia

■ **Associate Professor Ludvic Zrinzo**, MD, PhD, FRCS, Unit of Functional  
Neurosurgery, Sobell Department of Motor Neuroscience and Movement  
Disorders, UCL Institute of Neurology, London, United Kingdom



## **COURSE DESCRIPTION**

The second Regional DBS Meeting entitled „**Deep brain stimulation: New Horizons in Neurology and Psychiatry**“ is organized again as a collaboration of **University Hospital ‘Dubrava’ Zagreb with University College London - Unit of functional Neurosurgery, Queen Square London**. Deep brain stimulation (DBS) has been developing during the past 30 years as a remarkable treatment option for several different disorders. DBS has also evolved significantly during the past decade in Croatia. This meeting will provide a state-of-the art coverage of current DBS practice and future directions in this region of Europe and in the world. The various topics will be covered by an international faculty of distinguished invited lecturers from London, Shanghai, Grenoble, Ljubljana, Belgrade, Yale, Stockholm, Split, Rijeka and Zagreb. This will be the second educational course of this magnitude on deep brain stimulation for movement disorders in this part of the Eastern Europe region.

More than 150,000 patients worldwide have been treated by deep brain stimulation (DBS) for a drug refractory movement disorder. This course will benefit to general neurologists on the importance of accurate clinical diagnosis and identifying the cause of clinical problems; it will show clinical phenotypes of different forms of hyperkinetic and hypokinetic movement disorders. The presentations will discuss the selection criteria for surgery, which is necessary in order to select appropriate candidates and to refer these patients to surgical centers. DBS implantation techniques, imaging, neurophysiology targeting, criteria and issues in movement disorders and other advanced therapies for Parkinson’s disease will be also discussed. New DBS indications will be also discussed.

## **BRING YOUR OWN PATIENT – WORKSHOPS – INTERESTING CASES**

Participants are encouraged to submit their own case (e-mail: **dbs@kbd.hr**) to present at the Workshops or present DBS cases with some dilemma or problems and ask experts for advice in making decision. We expect good discussion, and talking about individualized trouble-shooting strategies and algorithms for DBS common problems in Movement Disorders. All submitted presentations will be reviewed by the Course Director and Faculty who will accept a few cases to be presented.

## ■ LEARNING OBJECTIVES

- At the conclusion of this activity, participants should be able to accomplish the following:
- Better understand the clinical phenomenology of hyperkinetic and hypokinetic movement disorders
- Provide an overview of the DBS targets and indications in movement disorders
- Discuss about DBS and other advanced therapies for Parkinson's disease
- Provide an overview of the deep brain stimulation in other neurological and psychiatric diseases
- Outline the efficacy and associated risks of DBS
- Discuss the different electrical parameters that can be adjusted for DBS and their biological effect
- Understand the role of the neurologist and all members of the DBS team in long-term management of DBS patients
- Understand the role of neuroscientists, neurophysiologists, neuroradiologists, and neurogeneticists in DBS
- Describe the strategies for analyzing the causes of "failed DBS surgery" and solutions
- Describe methods for indirect and direct stereotactic targeting
- Overview of neurosurgical techniques for lead (DBS) implantation
- Understand the role of neurologist, neurosurgeon and all members of the DBS team in long-term management of DBS patients
- Discuss troubleshooting strategies and algorithms for DBS common problems in Movement Disorders

## ■ RECOMMENDED AUDIENCE

This course is intended for movement disorder specialists, neurosurgeons, general neurologists, neurophysiologists, psychiatrists, residents of neurology, psychiatry and neurosurgery, specialist nurses, physiotherapists, occupational therapists, speech therapists, and trainees who wish to become more involved in the selection and postoperative management of patients with movement disorders (tremor, dystonia, Parkinson's disease, etc.), and other brain disorders treated by deep brain stimulation surgery.

**2<sup>nd</sup> Regional DBS meeting  
Deep brain stimulation:  
New Horizons in Neurology and Psychiatry**

**Zagreb, Croatia, May 4<sup>th</sup>-6<sup>th</sup>, 2017**

**Co-Directors**

Associate Professor **Darko Chudy**, MD, PhD

Associate Professor **Vladimira Vuletic**, MD, PhD

Professor **Marwan Hariz**, MD, PhD

Professor **Patricia Limousin**, MD, PhD

**Support**

Main sponsor: **Medtronic**

**Technical co-organizer:**

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**Rates**

**Before 1<sup>st</sup> March 2017**

MDS Members . . . . .	€ 200 Euro
Non-Members. . . . .	€ 220 Euro
Junior Participants . . . . .	€ 100 Euro
Students . . . . .	€ 50 Euro

**After 1<sup>st</sup> March 2017**

MDS Members . . . . .	€ 260 Euro
Non-Members . . . . .	€ 280 Euro
Junior Participants . . . . .	€ 150 Euro
Students . . . . .	€ 50 Euro

**Registration rates include all sessions,  
course materials, and breaks.**

**For reference, registration fees are listed in Euro.**

## TIMETABLE OF LECTURES

### 1<sup>st</sup> Day (Thursday, May 4<sup>th</sup>)

8.45-9.00	<b>Welcome address</b> by Professor Marijan Klarica, Dean of the Medical school University of Zagreb
9.00-9.15	<b>Welcome address</b> by Professor Milan Kujundžić, Minister of Health, Republic of Croatia
9.15- 9.35	<b>Neurobiology of decision making</b> Ivica Kostović
9.35-9.45	<b>Discussion</b>
9.45-10.05	<b>Neural Circuit Development and Function in the Healthy and Diseased Brain</b> Nenad Šestan
10.05-10.15	<b>Discussion</b>
10.15-10.35	<b>Genomic analysis of neurological diseases and possible implications on society</b> John Hardy
10.35-10.45	<b>Discussion</b>
10.45- 11.05	<b>What is the possible mechanism of DBS therapy in dystonia and Parkinson's disease</b> John Rothwell
11.05-11.15	<b>Discussion</b>
11.15-11.30	<b>Break</b>
11.30-11.50	<b>DBS for brain diseases: from established to investigational</b> Marwan Hariz
11.50-12.00	<b>Discussion</b>
12.00-12.20	<b>Surgical treatment options for dystonia</b> Marwan Hariz

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12.20-12.30

**Discussion**

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12.30-12.50

**Indications for DBS versus other advanced therapies for Parkinson´s disease**

Patricia Limousin

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12.50-13.00

**Discussion**

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13.00-13.20

**DBS for dystonia: state of the art and future directions**

Elena Moro

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13.20-13.30

**Discussion**

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13.30-14.30

**Lunch**

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14.30-14.50

**DBS and headache**

Ludvic Zrinzo

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14.50-15.00

**Discussion**

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15.00-15.20

**Overview of neurosurgical techniques for lead (DBS) implantation: pitfalls and recommendations**

Ludvic Zrinzo

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15.20-15.30

**Discussion**

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15.30-15.50

**Clinical importance of genetic analysis for dystonia**

Marina Svetel

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15.50-16.00

**Discussion**

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16.00-16.30

**Break**

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16.30-18.30

**Troubleshooting, pre- and postoperative problems, DBS "emergencies", "failed DBS surgery" in Movement Disorders**

(Limousin, Moro, Hariz, Trost, Vuletic, Chudy)

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Discussion, questions and case reports with individualized troubleshooting strategies and algorithms for DBS common problems in Movement Disorders

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**2<sup>nd</sup> Day (Friday, May 5<sup>th</sup>)**

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9.00-9.20	<b>Neurologist and DBS between hesitation and hope</b> Zvezdan Pirtošek
9.20-9.30	<b>Discussion</b>
9.30-9.50	<b>Cognitive Impairment as a target of DBS</b> Nenad Bogdanović
9.50-10.00	<b>Discussion</b>
10.00-10.20	<b>Gender differences in Parkinson's disease: a deep brain stimulation perspective</b> Dejan Georgiev
10.20-10.30	<b>Discussion</b>
10.30-11.00	<b>Break</b>
11.00-11.20	<b>The burden of normality after DBS- new challenges in postoperative treatment</b> Vladimira Vuletić
11.20-11.30	<b>Discussion</b>
11.30-11.50	<b>Stereotactic surgery for schizophrenia and anorexia nervosa (experience of Shanghai Ruijin Hospital)</b> Bomin Sun
11.50-12.00	<b>Discussion</b>
12.00-12.20	<b>Magnetic resonance imaging for direct targeting in DBS surgery; a neuroradiologist's point of view</b> Marko Radoš
12.20-12.30	<b>Discussion</b>
12.30-12.50	<b>DBS for disorder of consciousness</b> Vedran Deletis
12.50-13.00	<b>Discussion</b>

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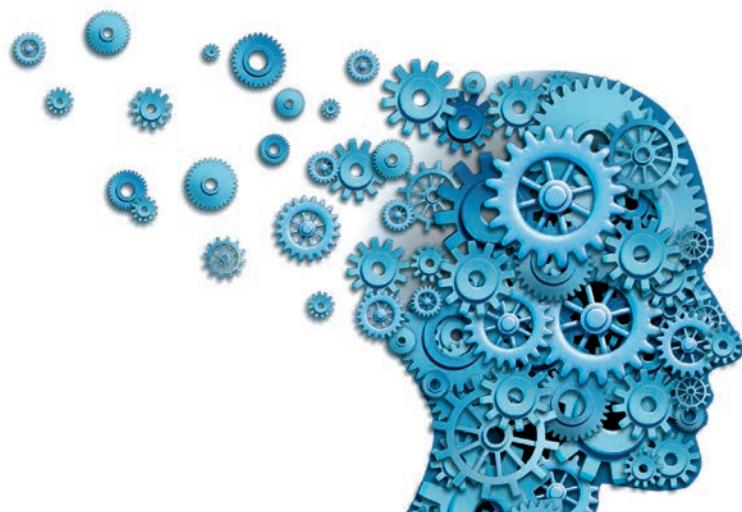
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13.00-13.20	<b>DBS in minimally conscious state (MCS) and vegetative state (VS) patients; our experience and review of the literature</b> Darko Chudy
13.20-13.30	<b>Discussion</b>
13.30-14.30	<b>Lunch</b>
14.30-15.30	<b>Workshops and discussion</b> 1. Direct stereotactic targeting vs indirect stereotactic targeting 2. Identifying and solving "failed DBS surgery" 3. Troubleshooting of hardware-related complications and lead revision (Hariz, Chudy, Sun)

### **3<sup>rd</sup> Day (Saturday, May 6<sup>th</sup>)**

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9.00-13.00	<b>Small group session:</b> Master class for stereotactic deep brain targeting (Medtronic Inc.) workshops (Hariz, Chudy, Sun, Valalik)
13.00-14.00	<b>Round table and closing remarks</b>





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