

## **Seminar IRH-ICUB**

### **Consciousness and Cognition: An Interdisciplinary Approach**

<https://irhunibuc.wordpress.com/2016/04/05/new-seminar-consciousness-in-philosophy-and-neuroscience/>

**convenor Dr. Diana Stanciu**

<https://irhunibuc.wordpress.com/associated-members/>

**Date: Thursday, 26 January 2017, 17h**

**Place: IRH-ICUB (1 D. Brandza Str.), conference room**

## **Dr. Ioana Mindruta MD**

**The University Emergency Hospital of Bucharest, Director of the Epilepsy Monitoring Unit  
Lecturer in Neurology, University of Medicine and Pharmacy “Carol Davila“ Bucharest**

**Dr. Ioana Mindruta** ([https://www.researchgate.net/profile/Ioana\\_Mindruta](https://www.researchgate.net/profile/Ioana_Mindruta)) founded the National Centre for Presurgical Evaluation of Drug-Resistant Epilepsy in 2007 and started the National Programme for Invasive Cerebral Exploration by means of Stereo EEG in 2012. Her general research interest is the design and application of advanced methods of neuromodulation based on electrical stimulation protocols involving both normal and pathological cerebral networks. She is the key person in a multidisciplinary team (neurosurgeons, physicists and neurophysiologists) who can provide appropriate surgical treatment or neurostimulation procedures to achieve disease control. Within the above-mentioned team, Dr. Mindruta has a special interest in electrophysiological biomarkers for epileptogenic networks and functional connectivity at both micro and macroscale. Throughout the years, Dr. Mindruta undertook numerous training and specialisation sessions in Uppsala, Grenoble, Lyon, Venice, etc. Since 2008, she has been the Vice-president of the Romanian Society of Neurophysiology and she has also organized numerous training courses and conferences in the field of neurophysiology and epileptology.

### ***Effective Connectivity in the Brain – Method and Applications***

The recent years witnessed important advances in the field of brain connectivity. Evidence of a correlation between structural and effective connectivity in the human language system exists since 2011. However, no human structural-effective whole brain connectivity atlas that contains information about the propagation pathways, including directionality of the connections, has been published to date. The term effective connectivity refers to the influence one brain region exerts over another, as a result of causal interactions. The effective brain connectivity has thus a large application field in both the healthy status and the understanding of brain pathologic conditions.

Using a method that we have already validated on a small set of epileptic patients, our team (Ioana Mindruta, Cristian Donos, Anca Arbune, Andrei Barborica) mapped the effective connectivity, assessed by recording intracranial EEG responses evoked by direct electrical stimulation, over the anatomical information about white matter tracts, which was obtained from a structural connectome derived from diffusion MRI. In patients undergoing invasive pre-surgical evaluation for drug-resistant epilepsy through the stereo-EEG method, we stimulated each implanted brain structure by using single pulse electrical stimulation. The same stimulation protocol was used in all patients and we averaged the effective connectivity of each patient to build whole-brain effective connectomes.