

ROSA VILLA

CV

PARTICIPANT AT:

A DIALOGUE WITH THE CEREBRAL CORTEX: CORTICAL FUNCTION AND INTERFACING

April, 29th-30th, 2015, Barcelona

Rosa Villa, Principal Investigator at the Biomedical Applications Group, **Microelectronics Institute of Barcelona**, (IMB-CNM, CSIC), Barcelona, Spain

She obtained the medical degree from the Universitat de Barcelona (1981) and the Ph.D. in Medicine by the Universitat Autònoma de Barcelona (1993), and specialized in nuclear medicine. Since 1986 she works at the Microelectronics Institute of Barcelona, and since 2006 as permanent member of CSIC's scientific staff. Currently she leads the Biomedical Application's Group of the IMB-CNM, which main research interests are the design and fabrication of Micro and Nano Systems for Biomedical Applications. Her training and experience in the biomedical field has driven the group to focus its research in the final applications in order to develop different biomedical devices. She has participated in more than 30 National and European projects, in 10 of them as principal investigator. Two of these projects have been awarded by the Premio Ciudad de Barcelona [City of Barcelona Award], in its Technical modality and in the field of Technological Research. She has more than 50 international publications in high-impact journals and book chapters and h-index of 15, and more than 10 patents, two of them being licensed to companies.

B-DEBATE IS AN INITIATIVE OF:



ROSA VILLA

ABSTRACT

PARTICIPANT AT:

A DIALOGUE WITH THE CEREBRAL CORTEX: CORTICAL FUNCTION AND INTERFACING

April, 29th-30th, 2015, Barcelona



Rosa Villa, Principal Investigator at the Biomedical Applications Group, **Microelectronics Institute of Barcelona**, (IMB-CNM, CSIC), Barcelona, Spain

Graphene as Brain Interface

Neural interfaces are still nowadays a challenge from the technological and biological point of view, because there is still a need to optimize the biological-artificial interconnection. Just because these devices will allow to study and learn about brain functions in acute or chronic experiments, make of them one of the major research lines in the coming years. Aspects such as improvements in biocompatibility, signal noise, electrodes decreasing the surface area, improving the electrode-electrolyte interface, etc are some of the most important key aspects to be improved. One of the most important research lines of our group has been always related with the design and manufacturing of neural interfaces for in vivo and in vitro recordings. New manufacturing techniques, new materials, new designs etc have been incorporated in the last years. The new research line initiated in the group is related with the study of graphene as a neural interface. It pursues the validation of this material as neural interface, as well as the fabrication of devices on flexible substrates that minimize brain damage, and can be used for both neuronal recordings and stimulation. Prototypes of microelectrode arrays are being fabricated in order to study if the properties and advantages of graphene such as flexibility, biocompatibility and capacitance allow improvements in the complex world of the neural interfaces.

B-DEBATE IS AN INITIATIVE OF:

