



«The Brain Forum is an essential platform to promote collaboration and to build partnerships»

→ **INTERVIEW:** Director of the Brain Mind Institute (BMI) at EPFL, Professor Carmen Sandi explains the importance of exploring the brain, and the necessity of the Brain Forum platform to exchange ideas and to build partnerships between academia, industry and philanthropists.



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Laura Mooney, PhD
The Brain Forum

Why is exploration of the brain important?

→ The brain controls all our mental and bodily functions. Disruption, eg in stroke, can have devastating effects such as speech loss or paralysis. Abnormal brain function underlies psychiatric diseases like Alzheimer's, depression, autism and schizophrenia. Who estimated that brain disorders affect 1 in 4 causing patient and family suffering, and high economic burden. Understanding the brain is crucial to improving therapy or prevention.

Why is the Brain Forum important?

→ There is increasing effort to study the brain and its diseases. EPFL created the Brain Mind Institute (BMI) in 2003 to put new efforts into brain research. Professor Markram, then director of the BMI, created the Human Brain Project in 2013, a European Commission Flagship program. In 2010, Professor Magistretti, the next director, launched NCCR-Synapsy, funded by the Swiss National Science foundation to study psychiatric disorders in collaboration with Geneva, Basel and Lausanne. EPFL also partnered with private foundations and companies to create the Center for Neuroprosthetics. These initiatives enabled diverse collaborations between genetics, physics, engineering and informatics. Thus, it is imperative to have a platform for ideas and information exchange, to promote collaboration, and to build partnerships between academia, industry and philanthropists.

You organized the Science day of TBF2016. Can you tell us more about it?

→ There is a focus on mental health and neurotechnology to

underscore brain function and treat dysfunction. We also have a follow-up on the International Brain Initiatives presented in 2015.

Keynote speakers Anderson and Hyman will focus on brain mechanisms underlying behavior, health and dysfunction in animals and humans respectively. These are complemented by a session on "The brain and mental health – Increasing awareness and reducing stigma" devoted to understanding brain mechanisms underlying mental disorders with emphasis on novel methods for improving mental health. Also, two symposia focus on the application of neurotechnological advances, one in animals based on cellular resolution tools to observe neural function and approaches to control activity, the other in humans focusing on "Advancing human neuroscience: encoding, decoding and neurofeedback using functional neuroimaging".

Your work focuses on impact of stress on cognitive function and psychopathology. Has the session about the brain and mental health a particular meaning for you?

→ Yes. It is now understood that stress is a major factor causing

mental health disorders. In shaping this session, I accounted for different approaches to mental health treatment, from psychology to psychiatry, neuroscience and neurology.

Dimitri Van De Ville, Professor of Bioengineering at EPFL and the University of Geneva, will chair the session on advancing human neuroscience. Can you tell us more about him and his role during the session?

→ Dimitri, head of Medical Image Processing at EPFL, is an affiliated professor of BMI. He works at the fore of applying non-invasive imaging techniques, developing innovative data-processing tools for acquisition, analysis and interpretation of neuroimaging data. Brain imaging makes it possible to look inside the brain to, eg determine the area affected by stroke, or locate areas responsible for specific functions. These tools and the session speakers will advance our understanding of brain function, in health and disease, aiding the development of new treatments. His role is to bring together high-profile leaders in the field and create lively discussion. ☰

