



BRAIN NETWORKS AND NEUROPSYCHOLOGICAL DISORDERS IN STROKE

**A TALK BY
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IRCCS ISTITUTO NEUROLOGICO
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**31
MAGGIO
14:30**

**AULA SEMINARI VIMM
FONDAZIONE RICERCA
BIOMEDICA AVANZATA
VIA ORUS, 2
PADOVA**

An emerging view in cognitive neuroscience emphasizes the importance of networks of brain regions, and their role in the segregation and integration of information required for cognition. Accordingly, a focal brain lesion might induce changes in brain activity beyond the site of damage. In this talk I will discuss recent work from our laboratory in understanding the effects of focal brain lesion on brain networks and behavior. A large body of neuroimaging studies indicates that the human brain is organized in large-scale resting state networks, defined via functional connectivity, whose topography strongly recapitulates the one observed during active behavior. In this framework, I will present several studies showing that the severity of neuropsychological disorders such as spatial neglect, motor impairments, and aphasia is selectively associated with widespread changes of functional connectivity of multiple resting state networks. Furthermore, despite the co-occurrence of correlated behavioral deficits after stroke, these reports suggest that abnormal functional connectivity can exhibit a high degree of behavioral specificity. Theoretical implications and clinical applications of the network-wise perspective in stroke will be discussed.



Antonello Baldassarre, PhD, is the Principal Investigator at IRCCS "Istituto Neurologico Mediterraneo NeurMed", Pozzilli (IS). The main goal of his work is to understand the behavioural relevance of the spontaneous brain activity in healthy as well as brain-damaged individuals. To this aim, he works on two complementary lines of research by combining functional MRI and brain stimulation techniques. The former is focused on how changes in resting state networks relate to behavioural impairments after stroke, while the latter is dedicated on how these networks account for inter-individual variability in perceptual and motor learning in normal subjects.



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