Title: Pain: Where in the Brain?

Speaker:
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Venue: Room 603, Chow Yei Ching Building

Abstract:
Brief radiant laser pulses activate cutaneous Aδ and C nociceptors selectively, and elicit reliable EEG and fMRI brain responses in a wide network of cortical areas. As this network of brain areas is assumed to be uniquely or preferentially involved in processing nociceptive input, it has been christened the "pain matrix", and laser-evoked EEG and fMRI responses have been used extensively in the past 30 years to gain knowledge about the cortical mechanisms underlying nociception and pain perception in humans.

In this talk I will illustrate some experimental results showing that, in contrast with this dominant view, the brain responses elicited by a selectively nociceptive stimulus do not reflect nociceptive- specific neural activities, but are entirely explained by a combination of multimodal neural activities (i.e. activities also elicited by stimuli belonging to other sensory modalities) and somatosensory- specific neural activities (i.e. activities elicited by both nociceptive and tactile somatosensory stimuli).

By showing that pain-evoked brain responses are not specific for the perception of pain, these results indicate that it is incorrect to refer to these responses as originating from a "pain matrix", and question the appropriateness of relying on them to build models of where and how nociceptive input is processed in the human brain.

Biography of the speaker:
Giandomenico Iannetti was born in Rome in 1974. He graduated in Medicine and Surgery from "La Sapienza" University of Rome, where he obtained his MD in 1999, and his PhD in Neuroscience in 2003. In 2003 he moved to Oxford and joined, as Post Doctoral Research Fellow, the laboratory of Irene Tracey. In Oxford he successfully combined the recording of EEG and functional MRI responses to laser stimulation in humans. In 2005 he was Visiting Scientist at the National Institutes of Health (NIH) in the United States, where he applied the technique of functional MRI to investigate quantitatively the neural activity in the spinal cord during voluntary movement.

In 2006 Dr Iannetti was awarded a University Research Fellowship of the Royal Society and joined St. Catherine's College as Fellow by Special Election. The Royal Society Fellowship allowed him to build his own research group, which has been initially based in Oxford. Dr Iannetti's current research focuses on the

neurophysiology of sensory systems in humans, with particular interest on the somatosensory system. His research group is currently based at the Department of Neuroscience, Physiology and Pharmacology of University College London.

Organizer: Dr. C.Q. Chang