



5<sup>th</sup> Barcelona Lecture Series in

# Brain, Cognition & Behaviour



## Leon Y. Deouell

*Edmond and Lily Safra Center for Brain Research*

*The Hebrew University of Jerusalem*

## Seeing the Big Picture – Hierarchy of Automatic Prediction in Temporal and Frontal Cortex

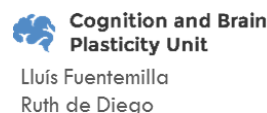
According to the predictive-coding framework the brain encodes regularities in the environment which are in turn used for predicting the input, and signaling deviations from this prediction. The mismatch response is taken as a paradigmatic example for such 'prediction error' signals produced automatically in response to unattended deviations from regularity. However, even for the simplest input, multiple predictions, sometimes contradicting, may be formed. I will discuss EEG and intracranial (ECOG) studies in humans, using auditory stimuli, and argue that temporal (auditory) and frontal cortices are both involved in the mismatch response, yet they reflect different predictions. Specifically, responses in the auditory cortex are dimension-specific and reflect local probabilities on a short temporal scale, whereas frontal cortices are dimension-independent and reflect the global statistics of the input. Finally, I will show evidence that predictions are reflected not only in prediction-error signals, but also in anticipatory, proactive modulation of broadband high frequency local field potentials.

**Date: Thursday, 10 May 2018**

**Hour: 15:00**

**Place: Sala de Graus, Facultat de Psicologia, Campus Mundet**

Organized by:



Additional Sponsors:

