

The “mirror” brain and the neural basis of empathy

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Mirror mechanism is a basic neural mechanism that transforms sensory representations of others' actions into motor representations of the same actions in the brain of the observer. In the first part of my talk I will describe the functions of the mirror mechanism located in the parieto-frontal network of monkeys and humans. I will show that this mechanism enables one to understand others in an immediate, phenomenological way, without recourse to cognitive inferential processing. In the second part of my talk I will discuss the role of the mirror mechanism in understanding basic Darwinian emotions. I will focus on disgust, fear and happiness and will demonstrate the role of the mirror mechanism in empathic experience of these emotions, contrasting it to their mere cognitive recognition. The data on emotions will lead me to the last part of my talk where I will present stereo-EEG data on action and emotion recognition. Stereo-EEG allows one to go beyond the static three-dimensional maps obtained with fMRI providing a *four* dimensional picture (space plus time) of brain activations during different types of actions