

# ORAL SESSION: Social Neuroscience, Emotion and Motivation

**Daniel Kennedy** Chair

Indiana University

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**Elizabeth Redcay** Chair

University of Maryland

College Park, MD

United States

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Oral Sessions

## Presentations

### **The relationship between BMI and volume of subcortical structures is age-dependent**

Obesity and increased body mass index (BMI) are related to altered anatomy and function of subcortical brain structures within the dopaminergic system [1,2]. Our previous meta-analysis showed that the relationship between the nucleus accumbens (NAcc) and BMI might be negatively related to age [1]. However, it is unknown whether other subcortical structures also display such an age-dependent relationship with BMI. In this study we aimed to examine this further and replicate our meta-analytic findings, but also support our interpretation that in older adults brain atrophy is related to chronic obesity.

#### **Presenter**

*Filip Morys*, Montreal Neurological Institute Montreal, Quebec

Canada

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### **Lower Reward Network Glutamate is Associated with Diminished Reward Responsiveness**

Reward responsiveness (RR) indexes one's capacity to experience pleasure or positive affect from the anticipation or obtainment of rewards. Low RR is a symptom common to diverse mental illnesses, including mood and psychosis spectrum disorders, that predicts poor treatment response (Uher et al., 2012; Wolf, 2006). In individuals without a diagnosable psychiatric disorder, low RR is furthermore associated with poor psychological wellbeing and risk of psychopathology (Taubitz et al., 2015). Elucidating neural features that mediate RR thus has implications for understanding mechanisms of psychiatric disorders and pharmacological treatment response. Functional MRI studies have shown that lower RR is associated with lower activity and connectivity within the

brain's reward network (Keller et al., 2013; Sharma et al., 2017). Nevertheless, the neurobiology underlying network hypofunction in those with lower RR remains unclear. Here, we harness ultra-high field Glutamate Chemical Exchange Saturation Transfer (GluCEST) imaging to investigate the hypothesis that glutamatergic deficits within the reward network may contribute to low RR.

### Presenter

*Valerie Sydnor*, University of Pennsylvania  
Psychiatry  
Philadelphia, PA  
United States

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## Hemispheric specialization of the inferior parietal lobe across key cognitive domains

The human inferior parietal lobe (IPL) is implicated as a heteromodal convergence zone in a diverse range of key cognitive domains (Seghier, 2013), from low-level processes such as spatial attention (Corbetta, et al., 2008) to high-level functions such as language (Hartwigsen et al., 2017) and social cognition (Bzdok et al., 2016). Despite sparse evidence for lateralized specificity, task-driven differences of whole-brain connectivity patterns emerging from the IPL remain enigmatic. The present study aims to shed light on functional specificity of the IPL across these three domains in a within-subject design. We employed three tasks prompting archetypical processes that exemplify the broader cognitive domains of attention, language comprehension, and social cognition.

### Presenter

*Ole Numssen*, Max Planck Institute for Human Cognitive and Brain Sciences Leipzig, Sachsen  
Germany

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## Cross-modal synchronization of intracranial EEG and fMRI during natural movie viewing

Our brains are highly efficient at processing exogenous information about the external world by transducing physical phenomena into sensory percepts. This information is propagated along the cortical hierarchy and is integrated with endogenous information reflecting our past experiences, current homeostatic states, and future goals. It has been proposed that this integration occurs in the ventromedial prefrontal cortex (vmPFC) and ultimately leads to the generation of affective meaning [1,2]. Using a naturalistic experimental design, we have previously found evidence using functional magnetic resonance imaging (fMRI) suggesting that sensory regions process exogenous information consistently across people at a fast timescale, while the vmPFC processes idiosyncratic exogenous information at a slower timescale [3]. However, it remains an open question whether this finding is a methodological artifact of BOLD fMRI, or if it reflects a more intrinsic property of neural information processing. In the present study, we explore whether these effects observed in fMRI generalize to local field potentials (LFPs) recorded via intracranial electroencephalogram (iEEG) in patients with epilepsy undergoing evaluation for surgical interventions.

## Presenter

*Tiankang Xie*, Dartmouth College  
Quantitative Biomedical Sciences  
Hanover, NH  
United States

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## **Doctor Trustworthiness Reduces Pain and Its Neural Correlates in Virtual Medical Interactions**

Trust is an important component of the doctor-patient relationship and is associated with improved patient satisfaction and health outcomes. In a previous study using simulated clinical interactions (Losin et al., 2017), we reported that patient feelings of trust toward their doctor in predicted reductions in evoked pain. In the present study, we aimed to investigate the brain mechanisms of this effect.

## Presenter

*Elizabeth Losin, Ph.D.*, University of Miami  
Department of Psychology  
Coral Gables, FL  
United States

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## **Social perspective taking shapes brain hemodynamic activity and eye-movements during movie viewing**

Perspective-taking is an important aspect of human social cognition. To perceive and understand the world around us in a similar way is necessary for reaching a common ground and smooth communication. One possibility to achieve shared understanding of a situation is to adopt the same psychological perspective. By the process of social perspective-taking the own point-of-view is temporarily suspended in order to simulate to view a situation from another person's different angle. Social perspective-taking is a relevant factor in society as it has a positive impact on social interactions and relations: perspective-taking can e.g. alleviate bias between groups.

## Presenter

*Mareike Bacha-Trams*, Aalto University  
Neuroscience and Biomedical Engineering  
Espoo  
Finland

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