

Research Seminars in General Psychology and Cognitive Neuroscience  
("Forschungskolloquium für Absolventen, Doktoranden, und Mitarbeiter")

**„General Psychology and Cognitive Neuroscience“**

(Prof. Dr. Stefan R. Schweinberger)

Summer Term 2012

Place: Am Steiger 3/EG, SR 009

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<http://www2.uni-jena.de/svw/allgpsy/researchseminars.htm>

Event Schedule

02.07.2012	Matthias M. Müller, Leipzig	Competition for processing resources between emotional stimuli and foreground task in the human brain
25.06.2012	Adrian Simpson, Melanie Weirich, Institut für Germanistische Sprachwissenschaft, Jena	Sex-specific differences in sound duration and perceived tempo
11.06.2012	Holger Wiese, Jena	On why N250 is not related to face learning
04.06.2012	Jessika Komes, Jena	Retrieving contextual information about familiar names: Neural correlates of person-related source memory
21.05.2012	Martin Eimer, London, UK	<a href="#">ERP studies of face processing in developmental prosopagnosia: Neuropsychological and neurodevelopmental perspectives</a>
07.05.2012	Monika Harvey, Glasgow, UK	<a href="#">The influence of action on perception in stroke and the influence of faces on saccadic programming</a>
23.04.2012	PPRU Principal Investigators	DFG Evaluation: Research Unit Person Perception
16.04.2012	Stefan R. Schweinberger, Jena	Initial Meeting

**Martin Eimer**

*Department of Psychological Sciences, Birkbeck College, University of London, UK*

## **ERP studies of face processing in developmental prosopagnosia: Neuropsychological and neurodevelopmental perspectives**

People with developmental prosopagnosia (DP) show severe face recognition deficits that typically emerge in early childhood, without history of neurological damage. I will present and discuss our recent findings from ERP studies of face perception and face recognition in DP. The generic facesensitivity of the N170 component is preserved in most DPs, suggesting intact rapid detection of face components. In contrast, DPs show atypical N170 face inversion effects, indicative of impaired structural encoding, specifically for upright faces. In line with a neurodevelopmental interpretation of DP, these effects are similar to those observed for other developmental disorders, and during earlier stages of typical development. Identity-sensitive ERP components (N250, P600f) that are markers of successful face recognition are very similar for DPs and control participants, indicating that some aspects of the core processing network operate normally in DP. However, there is a distinct sub-group of DPs which shows covert face recognition effects for the N250 component, indicating that visual face memory and semantic memory can become disconnected in these individuals. I will discuss the implications of our findings for neuropsychological and neurodevelopmental perspectives on DP.

**Monika Harvey**

*School of Psychology, University of Glasgow, UK*

## **The influence of action on perception in stroke and the influence of faces on saccadic programming**

A vast majority of stroke patients with right hemisphere lesions show hemispatial neglect, a severe visuospatial impairment, where they fail to perceive items presented in the contralateral part of space. Currently, it is strongly debated whether these patients also fail to reach out and grasp objects presented in that same space. Describing a range of studies recently carried out in these patients, I will argue that immediate on-line actions such as reaching and grasping for single objects are not impaired. I will also show that neglect patients have difficulties in delayed and anti-pointing tasks which require explicit off-line, allocentric processing. Moreover using voxel-based lesion-symptom mapping (VLSM), we found that the anatomical areas critically associated with these off-line deficits are located in the temporal lobes. These areas are anatomically distinct from those implicated in direct on-line reaching and grasping. I will argue that neglect patients present action deficits only when the actions tap into more perceptual representations, thought to rely on ventral visual stream processing. Visual dorsal stream processing seems to be spared in these patients. Importantly, I will show that this spared visual dorsal stream processing can be exploited successfully for stroke rehabilitation. The second part of my talk will cover saccadic programming. Numerous studies have demonstrated a face advantage, showing that faces are processed more efficiently and faster compared to other stimuli in our environment. This long-standing result has also been explored in terms of high- and low-level visual properties of faces. Using an anti-saccade paradigm, I have shown recently that faces induce stronger involuntary orienting responses than other visual objects. Moreover, these face biases were not mediated by global low-level visual properties. I then explored saccadic programming in relation to the own-race bias, a phenomenon describing superior

performance to recognise own-race faces compared to other-race faces: Using an anti-saccade paradigm, 20 Caucasian and 20 Chinese participants were presented with images of Western Caucasian and East Asian faces, all controlled for low-level visual features. Participants were given a cue instructing them to either saccade toward the face stimulus (pro-saccade) or away from the image (anti-saccade). I found that Chinese participants produced significantly higher anti-saccade error rates for Asian compared to other-race faces, while Caucasians revealed prolonged saccadic reaction times for correctly performed anti-saccades when presented with Caucasian but not other-race faces. The data give evidence for a reflexive, involuntary attentional bias towards own-race faces that cannot be accounted for by global low level visual factors.