

Society for Psychophysiological Research

49th Annual Meeting



Program Addendum

Student Social Location

All students are invited to attend the Student Social scheduled on Friday, October 23 starting at 10:30 p.m. This year's social will be held at the A-Lounge (35 Karl Marx Allee, about 0.6km from the BCC). Directions:

1. Walk on Alexanderstrasse towards Jacobystrasse (for about 36 meters, or about 118 feet). You should be walking away from the Kaufhof Galerie (large shopping center), away from the television tower, and Karl Marx Allee should be on your left.
2. Turn LEFT onto Jacobystrasse (walking towards Karl Marx Allee). Stay on Jacobystrasse, which will bend to the right.
3. Turn LEFT on Schillingstrasse (you'll pass Cafe Moskau on your right, and then the U5 Schillingstrasse stop on your left).
4. Turn RIGHT onto Karl Marx Allee (a large boulevard). You'll need to cross Karl Marx Allee to get to the A-lounge, which is at 35 Karl Marx Allee. The A-lounge is on the corner of Karl Marx Allee and Berloniastrasse, and across Berloniastrasse from Kino International.

Business Meeting and Luncheon

If you registered for the Business Meeting and Luncheon, there will be a separate ticket in your badge envelope. You will be asked to present this ticket for admission to the Business Meeting Luncheon. If you prefer a vegetarian meal, please alert your waiter or waitress so they can bring you the appropriate meal.

Tickets for the Business Meeting and Luncheon are not available for purchase onsite and cannot be replaced if lost.

Program Updates

SPR would like to recognize **William Iacono**, University of Minnesota, as the recipient of the 2008 Award for Distinguished Contributions to Psychophysiology. Dr. Iacono's name was inadvertently omitted from the list of award winners in the Final Program. SPR apologizes for this oversight.

The first author of the symposia *Implicit Contextual Information and Personal Values Shape the Preference for Odours* is **Géraldine Coppin**, rather than Sylvain Delplanque as listed in the Final Program.

Maximilian Bruchmann is the first author of the symposia *Neurophysiological Correlates of Visual Metacontrast Masking Observed with Parallel and Orthogonal Sinusoidal Gratings*. His name was originally published as Bruchmann Maximilian.

Hedwig Eisenbarth is the first author of the symposia *Event Related Potentials After Mood Induction in Criminal Female Psychopaths*. His name was originally published as Hedwig R. Eisenbarth.

Hedwig Eisenbarth and **Edelyn Verona** will serve as discussants for Symposium 7.2. Christopher J. Patrick is not able to attend.

Mustafa al'Absi and **Kristen Salomon** will be leading the Psychoneuroimmunology and Neuroendocrine Assessments roundtable discussion. Cora Stefanie Weber is not able to attend.

Room Changes

Saturday, October 24
8:30 a.m.-10:00 a.m.

Symposium 6.2

Control Mechanisms of Visual Attention in the Human Brain

Moved to room A03-A04

Saturday, October 24
10:30 a.m.-12:00 noon

Symposium 7.3

Thanks for the Asymmetries: Contributions of John J.B. Allen to Psychophysiology and Students

Moved to room B09

Saturday, October 24
10:30 a.m.-12:00 noon

Symposium 7.4

The N170's Special Relation with Face Perception: How, Why and Where?

Moved to room A03-A04

The following Special Interest Lunches or Dinners will be taking place:

Surface Laplacian

Friday, October 23, 2009

11:30 a.m.-1:00 p.m.

Contact: Jürgen Kayser at kayserj@pi.cpmc.columbia.edu

Psychophysiology in Primarily Undergraduate Institutions

Friday, October 23, 2009

11:30 a.m.-1:00 p.m.

Contact: Jeff Sable at sablej@rhodes.edu

Psychophysiology in Psychiatry: from Observations to Clinical Applications

Friday, October 23, 2009

11:30 a.m.-1:00 p.m.

Contact: Nash Boutros at nboutros@med.wayne.edu

Deception Research

Friday, October 23, 2009

7:00 p.m.-9:00 p.m.

Contact: Frank M. Marchak at fmarshak@vradc.com

Poster Session Changes

Poster Session I

Wednesday, October 21

The following abstract will be presented in Poster Session I:

Poster #189

A PSYCHOPHYSIOLOGICAL INTERACTION ANALYSIS DURING VOLUNTARY REGULATION OF THE ANTERIOR INSULA ACTIVITY IN PRESENCE OF THREAT RELATED PICTURES

Ralf Veit¹, Vanessa Singh², Ranganatha Sitaram¹, Niels Birbaumer^{1,3}

¹University of Tübingen; ²International Max Planck Research School; ³Instituto di Ricovero e Cura a Carattere Scientifico

Descriptors: emotion, real-time fMRI, connectivity, anterior insula

Previous studies have shown that healthy subjects learn to control brain activity through operant training by using real-time functional magnetic resonance imaging (rtfMRI). Few data exist, however, of the dynamics of interaction between critical brain regions during rtfMRI based training. Here, we use psychophysiological interaction (PPI) analysis of real-time fMRI data. During voluntary up-regulation of the left anterior insula in the presence of threat related pictures, differential activations were observed in the ventrolateral prefrontal cortex, the frontal operculum, the middle cingulate cortex and the right insula. Down-regulation in comparison to no-regulation condition revealed additional activations in the right superior temporal cortex, the right inferior parietal cortex and the middle frontal cortex. There was a significant learning effect over sessions during up-regulation, documented by a significant improvement of anterior insula control over time. PPI analysis revealed that successful up-regulation of the activity in the left anterior insula, while viewing aversive pictures, was directly modulated by the dorsomedial prefrontal cortex and the ventrolateral prefrontal cortex. Down-regulation of the insula activity was more difficult to achieve and no learning effect was observed. More training might be necessary for successful down-regulation. These findings illustrate the interactions between different brain areas during regulation of the anterior insula and indicate direct behavioral consequences of intracortical dynamics expressed in connectivity changes.

Poster Session II

Thursday, October 22

The following posters have been withdrawn:

Poster #63

THE N2 EFFECT IN TRUTHFUL AND DECEPTIVE RESPONSES TO AUTOBIOGRAPHICAL INFORMATION

Xiaoqing Hu, Genyue Fu, & Haiyan Wu
Zhejiang Normal University

Poster #134

THE BRAINS OF PROBLEMATIC GAME USERS SEEK STRONGER SENSATION: AN EVENT RELATED POTENTIAL STUDY ON PROBLEMATIC ONLINE GAME USERS

Wooyeol Shin, Junghyun Hahm, Joohan Kim, & Hae-Jeong Park
Yonsei University

Poster #142

THE REGULATION OF EMOTIONS IN ALEXITHYMIA: AN ERP ANALYSIS

Sarah A. Walker, Alexandre Schaefer, & Daryl B. O'Connor
University of Leeds

Poster #151

THE IMPACT OF WORKING MEMORY LOAD ON EEG MEASURES OF MENTAL EFFORT AND MOTIVATION DISPOSITION

Katie C. Ewing & Stephen H. Fairclough
Liverpool John Moores University

Poster #162

ALPHA ACTIVITY ERD IN THE VISUAL SEARCH TASK

Natalia S. Yermachenko¹, Alexander A. Yermachenko², & Alexander V. Latanov¹

¹Moscow State University; ²Modern University of Humanities

Poster #165

POST-ERROR AND ERROR-PRECEDING ERPS IN ADHD

Jan R. Wiersma
Ghent University

The following abstracts will be presented in Poster Session II:

Poster #162

ODDBALL (P300) BRAIN-COMPUTER INTERFACE: THE EFFECT OF DEPRESSED MOOD AND EMOTION ON PERFORMANCE

Steve Lukito¹, Sebastian Halder², Paul Bretherton³, Boris Kotchoubey², Claus Vögele³ & Andrea Kübler^{1,2}

¹University of Würzburg; ²University of Tübingen, ³Roehampton University

Descriptors: P300 brain-computer interface, oddball BCI, human factor, emotion, depressed mood

A user's ability to communicate using Brain-Computer Interface (BCI) may be affected by his concurrent psychological states such as emotion and motivation. The present study investigated how depressed mood and emotional states influence an oddball BCI performance. Thirty-three healthy volunteers underwent pleasant, unpleasant, and neutral emotion induction using the International affective picture system (IAPS) while completing a copy-spelling task on the oddball BCI. Depressed mood was assessed prior to experimentation using the Centre for Epidemiologic Studies – Depression (CES-D) scale. The results showed that depressed mood correlated negatively with BCI performance while participants whose depressed mood above the median CES-D score showed significant reduction of BCI performance during pleasant and unpleasant states in comparison to neutral state. No difference was observed in the grand average of P300 event-related potential (ERP) base-to-peak amplitude across emotion conditions although there was a trend for higher P300 amplitude in the neutral condition. To summarize, depressed mood and emotion appeared to have adverse effect, albeit minor, on the healthy participants' ability to communicate with oddball BCI.

Poster #165

MUSCLE FATIGUE AND COGNITIVE TASK PERFORMANCE, MECHANISMS OF INTERACTION

Maria Evstigneeva¹, Alexandr Alexandrov¹, Svend Erik Mathiassen² & Eugene Lyskov²

¹St Petersburg University; ²University of Gävle

Cognitive task execution was noted to influence development of muscle fatigue, while motor task affects cognitive task performance. Neurophysiological mechanisms of such interference are largely unknown. Aim of the study was to explore the mechanisms of cognitive and motor tasks interactions. We examined: 1) muscular workload effects on the sequential stages of cognitive processing; 2) effect of the level employed in cognitive processing on the muscular fatigue development. 17 participants (age 24±1.4, 8 males) participated in 3 experimental sessions. 3x2 crossover design of

the study included performance of 3 oddball based Cognitive Tasks: passive, counting, and button press, and 2 Physical Tasks: 11 minutes sustained handgrip with 30% and 7% MVC. EEG, auditory ERP, ECG, cognitive tasks performance, and subjective estimates of muscular fatigue were recorded. ANOVA with repeated measures and analysis of correlation patterns in the data were performed. At 30% of MVC fatigue developed at a slower rate during cognitive task with motor component (button press). Muscular work and fatigue decreased attention-dependent ERP components (P300a, b); fatigue development progressively reduced the amplitude of MMN; characteristics of exogenous auditory ERP components (P1, N1, P2) in response to irrelevant stimuli correlated with muscular workload and heart rate variability parameters. Thus, physical load and fatigue influenced cognitive processing at extremely early, preconscious and involuntary stages. At least motor component of cognitive task performance affected fatigue development.

The following abstract was not complete in the *Psychophysiology Journal*:

Poster #27

DECREASED PRE-MOTOR VOLUME IN VICTIMS OF URBAN VIOLENCE WITH PTSD

Vanessa Rocha-Rego¹, Mirtes G. Pereira², Mateus Joffily¹, Leticia Oliveira², Adriana Fiszman¹, Carla Marques-Portella¹, Mauro Mendlowicz², Ivan Figueira¹, & Eliane Volchan¹

¹Federal University of Rio de Janeiro; ²Fluminense Federal University

Electrical stimulation of the pre-motor cortex evokes defensive-like withdraw movements in monkeys (Graziano and Cooke; 2006). The authors suggested that a major emphasis of this area is the construction of a margin of safety around the body and the selection and coordination of defensive behaviour. We conducted a voxel based morphometry study (VBM-DARTEL) to detect brain anatomical differences in victims of urban violence with PTSD (n=16) relative to trauma-exposed controls (n=17) by analysing T1-weighted magnetic resonance images. Direct group comparisons using t test showed reduced gray matter volume in right pre-motor cortex (BA6, p<0.05, corrected). We hypothesize that volume reduction in this area could reflect inapt defensive responses in PTSD patients. Support: CNPq, FAPERJ, FINEP, CAPES

Poster Session III

Friday, October 23

The following abstract was not complete in the *Psychophysiology Journal*:

Poster #152

DYNAMIC MODULATION OF BRAIN ACTIVATION IN RESPONSE TO VARYING DEGREES OF TOP-DOWN/BOTTOM-UP PROCESSING CONFLICT

René Westerhausen, Stein-Ove Belsby, Matthias Moosmann, Karsten Specht, & Kenneth Hugdahl
University of Bergen

Attending to a less salient stimulus in the presence of a competing stronger one, constitutes a conflict between top-down and bottom-up processing which requires cognitive control to be resolved. The aim of this fMRI study was to examine modulation of brain activation in response to parametrically varying degree of conflict. Twenty subjects performed an auditory speech perception task using dichotically presented consonant-vowel syllables where the degree of conflict was varied by changing the (bottom-up) saliency of the stimuli through interaural intensity differences. This was done in 5

steps from -18 dB in favor of the left ear stimulus to +18 dB in favor of the right ear stimulus, including a no-difference condition. Top-down processing was manipulated by using three attention instruction conditions (focus attention on right or left ear, and a no-instruction condition). Event-related fMRI data were acquired using a "silent gap" protocol to allow for scanner noise-free stimulus presentations. The results showed a top-down/bottom-up interaction (p<.05, corrected) bilaterally in the supramarginal gyrus and pre supplementary motor area, and in the right anterior cingulum, right inferior and middle frontal gyrus. For all regions, increasing processing conflict was associated with a linear increase in activation in the focused attention conditions, but not in the no-instruction condition. It is suggested that these brain regions constitute a cognitive control network that, depending on the task demands, dynamically adjusts the level of activation to resolve the conflict.

The following posters have been withdrawn:

Poster #157

THE WANDERING EYE OF MEN: AN ELECTROPHYSIOLOGICAL INVESTIGATION INTO DISTRACTION BY ATTRACTION

Johanna C. Van Hooff, Helen Crawford, & Mark Van Vugt
University of Kent

Poster #166

PHYSIOLOGICAL PREDICTORS OF EXECUTIVE FUNCTIONING IN EVERYDAY CONTEXTS

Stefan Sutterlin¹, Claus Vogele², & Stein Andersson³
¹University of Würzburg; ²Roehampton University London; ³Rikshospitalet University Hospital

Poster Session IV

Saturday, October 24

The following poster has added additional authors:

Poster #165

RESPIRATORY SINUS ARRHYTHMIA AS A PROXY MEASURE OF EMOTIONAL SENSITIVITY IN EATING DISORDERS: A PILOT STUDY

Eunice Y. Chen, Karla Fettich, Johnny Berona, James Roehrig, Haotian Zhou, Tanja Gazibara, Stephanie Harold, Megan Nelson, Hakeemah Cummings, & Michael S. McCloskey
The University of Chicago

The following posters have been withdrawn:

Poster #143

DEFICIENT FRONTAL-STRIATAL-THALAMIC ACTIVITY DURING ATTENTION-TO-PREPULSE AND VISUAL-FLANKER TASKS IN SCHIZOPHRENIA

Erin A. Hazlett¹ & Ella B. Teague²
¹Mount Sinai School of Medicine, ²Queens College and The Graduate Center of The City University of New York

Poster #151

ANXIETY AND DEPRESSION DURING PREGNANCY: IMPACT OF STRESS ON MOTHER AND FETUS

Corinne Urech¹, Benedikt Christen¹, Nadine Fink², Johannes Bitzer¹, Irène Hoesli¹, & Judith Alder¹
¹University Women's Hospital Basel; ²Harvard Medical School

