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THE INTERNATIONAL JOURNAL OF THE
SOCIETY FOR PSYCHOPHYSIOLOGICAL RESEARCH

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2020 Virtual Annual Meeting of the Society for Psychophysiological Research

Virtual Pre-Conference Workshop: October 4–6

Virtual Annual Meeting: October 7–9

Virtual Post-Conference Workshop: October 10–11

Website: www.sprweb.org

The 2020 Virtual Annual Meeting Program includes one Pre-Meeting Workshop, one Invited Address, Big Idea Sessions, Symposia, and a Post-Meeting Workshop. Specific research topics will be covered in the Symposia. The majority of the research reports will be discussed at the Poster Sessions.

This Supplement contains the abstracts from each presentation in the Symposia, Big Ideas, and Poster Sessions.

All authors are listed in the Index to Abstract Authors. In addition, abstract topics are listed in the Index to Abstract Descriptors.

We thank all contributors for sharing their research and making this meeting a rich and stimulating event!

Dan Foti

2020–2021 Program Committee Chair

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Program Highlights

Sunday, October 4, 2020, 11:00 a.m.-3:00 p.m., EDT

Monday, October 5, 2020, 11:00 a.m.-3:00 p.m., EDT

Tuesday, October 6, 2020, 11:00 a.m.-3:00 p.m., EDT

Pre-Meeting Workshop

Mini ERP Boot Camp

Organizer and Presenter:

Steven J. Luck, PhD, Center for Mind & Brain and Department of Psychology, University of California, Davis

Wednesday, October 7, 2020

10:00 a.m.-11:00 a.m., EDT

Invited Address

Chemistry of the Adaptive Mind: Lessons from Dopamine

Roshan Cools, PhD

Principal Investigator, Motivational and Cognitive Control Lab, Donders Institute for Brain, Cognition and Behavior, Professor of Cognitive Neuropsychiatry, Radboud University Medical Center, Nijmegen, The Netherlands

11:00 a.m.-12:00 p.m., EDT

Symposium #1: RISKY BUSINESS: USING PSYCHOPHYSIOLOGY TO UNDERSTAND RISK AND REWARD IN HEALTH AND ILLNESS

12:30 p.m.-1:30 p.m., EDT

Big Ideas Session #1: Sex Differences and Women's Health

1:30 p.m.-2:30 p.m., EDT
Poster Session 1

2:30 p.m.-4:00 p.m., EDT
Diversity and Outreach Committee Event, co-sponsored by the Australasian Cognitive Neuroscience Society
Building Diversity Pipelines

Dr. Kim R. Bobby, D,E,&I Leadership Consultant, Higher Education

The effectiveness of implementation of institutional policies and practices aimed at increasing representation from diverse groups in academic and research environments is often hampered by weak recruitment and retention of faculty, staff and students from diverse backgrounds. Dr. Bobby will lead an interactive workshop targeting barriers and enablers of wider diversity pipelines in academia.

Thursday, October 8, 2020

10:00 a.m.-10:30 a.m., EDT
Early Career Award Address
Kyle E. Mathewson
University of Alberta

10:30 a.m.-11:30 a.m., EDT
Symposium #2: TO PREDICT OR NOT TO PREDICT: MODELING EEG DATA, PROMISES, AND LIMITATIONS

11:30 a.m.-12:30 p.m., EDT
Big Ideas Session #2: Understanding Laboratory and Real-world Behavior

12:30 p.m.-1:30 p.m., EDT
Poster Session 2

5:00 p.m.-6:00 p.m., EDT
Workshop: New Reviewer Do's and Don'ts
Monica Fabiani, Editor-in-Chief, *Psychophysiology*
Frini Karayanidis, Associate Editor
Lisa Gazke-Kopp, Senior Editor

In this workshop, the Editor-in-Chief of *Psychophysiology* and members of the Editorial Board will provide some tips and resources for new reviewers of journal articles, including how to get invited to do your first review, and what to do once you are, including best practices and typical problems.

Friday, October 9, 2020

10:00 a.m.-11:00 a.m., EDT
Psychophysiology Editorial Board Meeting

11:00 a.m.-12:00 p.m., EDT
Symposium #3: HOW AND FOR WHOM: FUNCTIONAL MECHANISMS IN COGNITION AND MOOD CONSIDERING SEX AND IDENTITY-RELATED FACTORS

12:30 p.m.-1:30 p.m., EDT
Awards Ceremony and Business Meeting

1:30 p.m.-2:30 p.m., EDT
Poster Session 3

Saturday, October 10, 2020, 10:00 a.m.-11:30 a.m., EDT
Sunday, October 11, 2020, 10:00 a.m.-11:30 a.m., EDT

Post-Meeting Workshop: ERP Decoding Methods

Organizer and Presenter:

Steven J. Luck, PhD

Center for Mind & Brain and Department of Psychology, University of California, Davis

Gi-Yeul Bae, PhD
Arizona State University

Aaron M. Simmons, BS
University of California, Davis,

Poster 1-054

SHIELDING CHIPS REDUCE EFFECTS OF SMARTPHONE-EMITTED RADIATION IN THE 5G RANGE ON EEG BRAIN ACTIVITY

Diana Henz
University of Mainz

Descriptors: 5G, Shielding Chips, EEG

Current literature shows adverse effects of electromagnetic fields (EMFs) emitted by mobile phones on EEG brain activity. In previous studies, it was shown that shielding chips that are applied in mobile phones reduced effects of mobile phone-emitted EMFs on brain activity. In the present study, we investigated the effects of shielding chips on brain activity when subjects were exposed to mobile phone radiation in the 5G range. Subjects were exposed to EMFs emitted by a smartphone (Samsung Galaxy S10 5G) call. We tested the following experimental conditions: (a) smartphone call with application of a shielding chip (Gabriel-Tech), (b) smartphone call without application of a shielding chip, (c) control condition with smartphone switched off. Each condition was tested for 15 min. High-density EEG was recorded from 128 electrodes applied according to the international 10–20 system before, during, and after each experimental condition. Results showed increases in EEG beta and gamma activity in frontal, temporal, parietal, and occipital areas when subjects were exposed to the smartphone without application of a shielding chip compared to the control condition. EEG beta and gamma activity significantly decreased in frontal, central, temporal, parietal, and occipital areas when the shielding chip was applied compared to the condition without shielding chip. Results indicate that application of the shielding chip reduces increases in high-frequency brain activity induced by smartphone-emitted EMFs in the 5G range.

Poster 1-055

GENETIC ASSOCIATION OF THE NICOTINIC ACETYLCHOLINE RECEPTOR ALFA-4 SUBUNIT GENE (CHRNA4) RS1044396 WITH INTERNET ADDICTION IN SIBERIAN ADOLESCENTS: A CASE-CONTROL STUDY

Sergey Tereshchenko; Marina Smolnikova; Margarita Shubina
Scientific Research Institute for Medical Problems of the North

Descriptors: Internet addiction, adolescents, genetic predisposition

Internet addiction (IA) is a relatively new psychological phenomenon, most commonly marked in socially vulnerable groups (e.g., in adolescents and young adults). In two case-control studies have been shown that *CHRNA4* rs1044396 variants are associated with IA in adults (Jeong et al., 2017; Montag et al., 2012). To our knowledge, no replication of these studies in adolescent population has been published so far. Methods: 347 urban Siberian (Krasnoyarsk, Abakan) adolescents (aged 12–18) were tested with Chen Internet Addiction Scale (CIAS). Based on the CIAS score, Internet users were categorized into three groups: adaptive Internet users (AIU); maladaptive Internet users (MIU); and pathological Internet users (PIU). For each case of PIU/MIU adolescents, a corresponding AIU control was selected in the same school who matched the case in both sex and age. Genotyping was carried out using the polymerase chain reaction approach. Chi-square and Kruskal-Wallis tests were used. Results: We revealed that rs1044396 CC genotype prevalence progressively increase with IA severity: AIU group ($n = 179$)—19.6%, MIU group ($n = 79$)—30.4%, and PIU group ($n = 86$)—36.1% ($p_{AIU-MIU} = 0.1$; $p_{AIU-PIU} = 0.02$). Additionally, CC genotype carriers exhibited the highest CIAS score (TT – 41 (35–60), CT – 40 (33–62), and CC – 53.5 (37–66), $p(K-W) = 0.023$). Conclusions: Thus, CC variant of *CHRNA4* rs1044396 was associated with IA in Siberian adolescents. We suppose that the cholinergic system may be involved in the PIU at the early stage of addiction formation and in population with low rate of nicotine dependence.

Funding: The reported study was funded by RFBR according to the research project № 18-29-22032\19.

Poster 1-056

DOES AMPLIFICATION STYLE MATTER? IT'S IN THE WAY THAT YOU USE IT: A COMPARISON OF ACTIVE- AND PASSIVE- TRANSMISSION EEG ELECTRODES DURING A WALKING ODDBALL TASK

Joanna Scanlon; Nadine Jacobsen; Marike Maack; Stefan Debener
University of Oldenburg

Descriptors: Walking, Electrodes

It has been stated that active-transmission electrodes should improve signal quality in mobile EEG recordings. However, few studies have directly compared active- and passive-transmission electrodes during a mobile task. In this repeated measurements study, we investigated the performance of electrodes using active and passive signal transmission, using the same amplifier system, during a mobile auditory oddball task. 18 participants performed an auditory oddball task both while standing and walking in an outdoor environment. While walking, there was a significant decrease in P3 amplitude, increased baseline ERP data noise and decreased signal-to-noise ratio (SNR). No significant differences were found in signal quality between the two electrode types. Walking movement, data noise, SNR and P3 amplitude were re-test reliable between recordings, demonstrating that individual differences can be reproduced on different days and with different electrode systems. We conclude that adequate use of a passive system achieves signal quality equivalent to that of an active system.

Poster 1-057

MISTAKES THAT MATTER: AN EVENT-RELATED POTENTIAL STUDY ON OBSESSIVE-COMPULSIVE SYMPTOMS AND SOCIAL PERFORMANCE MONITORING IN DIFFERENT RESPONSIBILITY CONTEXTS

Myrthe Jansen^{1,2}; Ellen de Bruijn^{1,2}

¹Institute of Psychology, Leiden University, ²Leiden Institute for Brain and Cognition (LIBC)

Descriptors: Error-related Negativity, Social Performance Monitoring, Obsessive-compulsive Symptoms

Mistakes that affect others often are linked to increased feelings of responsibility and guilt. This especially holds for individuals high in obsessive-compulsive symptoms (OCS), who are characterized by inflated feelings of responsibility and a fear of causing harm to others. This event-related potential study investigated individual differences in OCS in social performance monitoring with a focus on the role of responsibility for other's harm and the error-related negativity (ERN). Healthy volunteers low ($N = 27$) or high ($N = 24$) in OCS performed a Flanker task in the presence of a gender-matched peer in three conditions. Mistakes could either have negative monetary consequences for (a) oneself, (b) the other, or (c) no one. Results showed enhanced ERNs for mistakes that harmed others instead of the self for individuals high in OCS, whereas individuals low in OCS showed decreased amplitudes specifically for mistakes affecting no one versus oneself. Amplitudes of the error positivity but not the ERN also were larger in the high OCS group. These findings indicate that high OCS are associated with enhanced performance monitoring in a social responsibility context, when mistakes harm others instead of the self, and demonstrate the importance of integrating the social context in performance monitoring research as a way to shed more light on obsessive-compulsive symptomatology.

Funding: This work was supported by a personal grant from the Netherlands Organization for Scientific Research awarded to E.R.A. de Bruijn (NWO; VIDI grant nr. 452-12-005).