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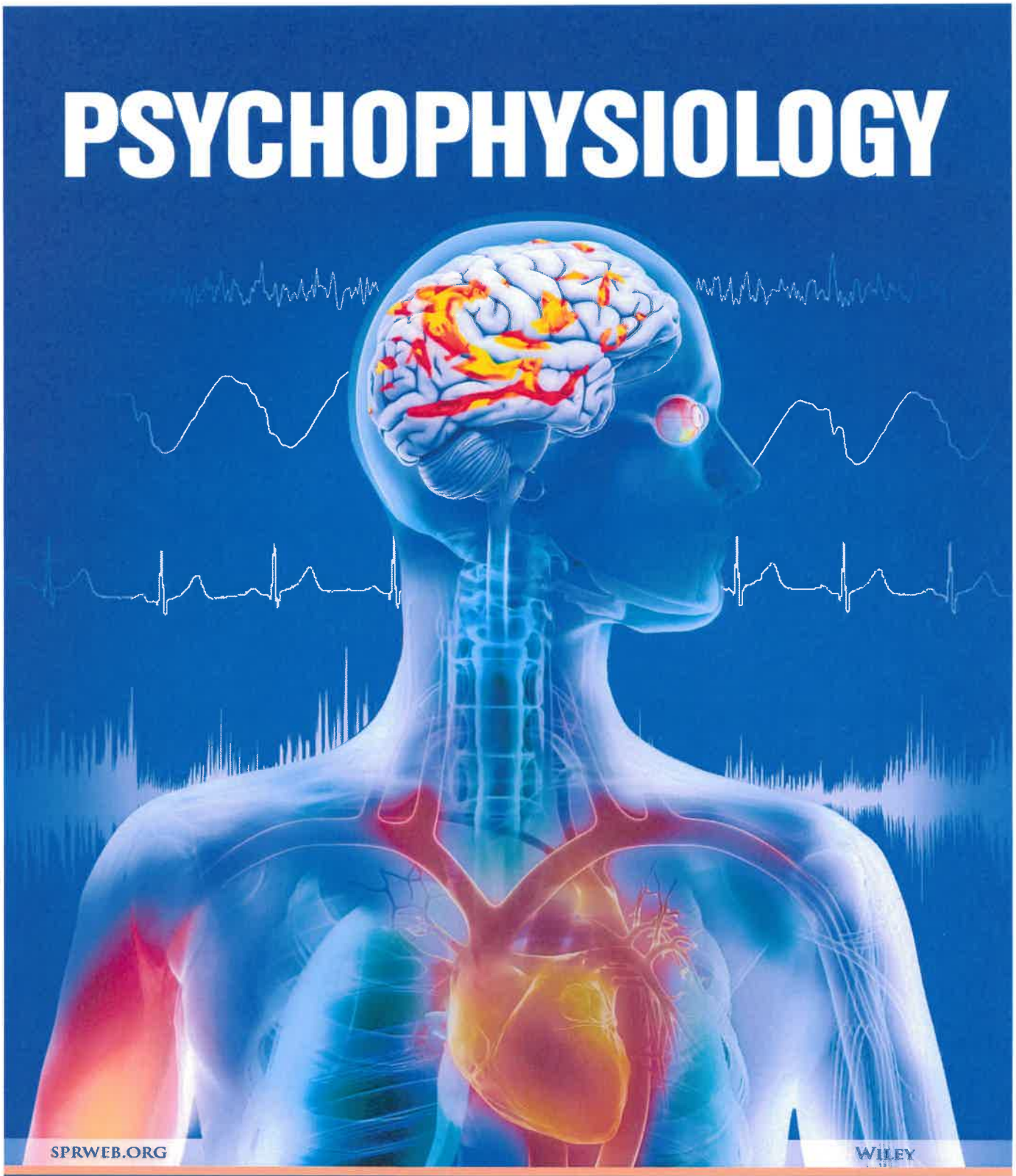

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THE INTERNATIONAL JOURNAL OF THE
SOCIETY FOR PSYCHOPHYSIOLOGICAL RESEARCH

PSYCHOPHYSIOLOGY

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2021 Virtual Annual Meeting of the Society for Psychophysiological Research

Virtual Pre-Conference Workshops: October 10–13
Virtual Annual Meeting: October 14–16
Virtual Post-Conference Workshop: October 18
Website: www.sprweb.org

This Supplement contains the abstracts from each presentation in the Symposia, Big Ideas and Poster Sessions being presented at the 2021 SPR Virtual Annual Meeting scheduled for October 10–18.

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

The 2021 Virtual Annual Meeting Program includes three Pre-conference Workshops, three Invited Addresses, five Big Idea Sessions, multiple Symposia, and one Post-conference workshop (one of the Pre-conference workshops repeated). Specific research topics will be covered in the Symposia. The majority of the research reports will be discussed at the Poster Sessions.

You will notice that the timing of events for this year's Annual Meeting is a bit different than the typical conference schedule. We have made a concerted effort to make the meeting as accessible as possible for all attendees around the globe. With this in mind, each day of the Annual Meeting has been split between an 'early' session (morning in North America, afternoon in Europe) and a 'late' session (evening in North America, morning in Asia/Australia/New Zealand), with a break mid-day. This way, more attendees will hopefully be able to access the conference events live.

Of course, no single time works well for everyone, so this schedule is asking for some compromises from all. Thank you for your understanding, and we are looking forward to an outstanding SPR Annual Meeting!

We would like to thank all contributors for sharing their research and making this year's Annual Meeting a rich and stimulating event!

Dan Foti
2020–2021 Program Committee Chair

Pre-conference Workshops

Sunday, October 10, 2021, 11:00 a.m.–3:00 p.m. EDT; 3:00 p.m.–7:00 p.m. UTC
Tuesday, October 12, 2021, 11:00 a.m.–3:00 p.m. EDT; 3:00 p.m.–7:00 p.m. UTC
Wednesday, October 13, 2021, 11:00 a.m.–3:00 p.m. EDT; 3:00 p.m.–7:00 p.m. UTC

Pre-conference Workshop: Mini ERP Boot Camp

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

Tuesday, October 12, 2021, 9:00 a.m.–1:00 p.m. EDT; 1:00 p.m.–5:00 p.m. UTC
Wednesday, October 13, 2021, 9:00 a.m.–1:00 p.m. EDT; 1:00 p.m.–5:00 p.m. UTC

Pre-conference Workshop 2: Ambulatory Psychophysiological Methods: Devices, Measures and Data Considerations

Jolie Wormwood, PhD[1], Karen Quigley, PhD[2], Prof. Dr. Eco de Geus[3], Sarah Ostadabbas, PhD[2], and Katie Hoemann, PhD[4]
[1]University of New Hampshire, [2]Northeastern University, [3]Vrije Universiteit Amsterdam, [4]Katholieke Universiteit Leuven

Wednesday, October 13, 2021,
11:00 a.m.–3:00 p.m. EDT; 3:00 p.m.–7:00 p.m. UTC
Repeated:
Monday, October 18, 2021
9:00 p.m.–1:00 a.m. EDT; 1:00 a.m.–5:00 a.m. UTC (workshop is repeated from presentation on Wednesday)
Post-conference Workshop: Multilevel Modeling for Psychophysiologists
Elizabeth Page-Gould, PhD
University of Toronto

Program Highlights

Thursday, October 14, 2021

8:30 a.m.–10:00 a.m. EDT; 12:30 p.m.–2:00 p.m. UTC
Big Ideas Session: Physical & Mental Health

10:00 a.m.–11:30 a.m. EDT; 2:00 p.m.–3:30 p.m. UTC
President's Symposium on Diversity, Equity, and Representation
Sponsored by WISE and the Diversity and Outreach Committee

11:30 a.m.–1:00 p.m. EDT; 3:30 p.m.–5:00 p.m. UTC
Symposium 2.3
David Shapiro: His Life, Legacy, and Influence on Psychophysiology

4:00 p.m.–5:00 p.m. EDT; 8:00 p.m.–9:00 p.m. UTC
Invited Address
The Social Neuroscience of Prejudice
David Amodio, PhD
Professor of Psychology and Neural Science, New York University Professor of Social Psychology, University of Amsterdam

5:00 p.m.–6:30 p.m. EDT; 9:00 p.m.–10:30 p.m. UTC
Big Ideas Session: Psychophysiology across the Lifespan

6:30 p.m.–8:00 p.m. EDT; 10:30 p.m.–12:00 a.m. UTC
Workshop organized by SPR's journal *Psychophysiology:* Submitting Registered Reports to *Psychophysiology*
Andreas Keil, Senior Editor and Monica Fabiani, Editor in Chief

8:00 p.m.–9:30 p.m. EDT; 12:00 a.m.–1:30 a.m. UTC
Poster Session 1

Friday, October 15, 2021

8:30 a.m.–10:00 a.m. EDT; 12:30 p.m.–2:00 p.m. UTC
Poster Session 2

10:00 a.m.–11:00 a.m. EDT; 2:00 p.m.–3:00 p.m. UTC
Invited Address

Oscillatory Brain Activity in Humans: Selection, Suppression, Neural Sequestration and the Resolution of Environmental Competition
John J. Foxe, PhD
Killian J. and Caroline F. Schmitt Chair in Neuroscience, Director, The Ernest J. Del Monte Institute for Neuroscience,
Director, The University of Rochester Center for Brain Imaging, Professor & Chairperson, Department of Neuroscience, University of Rochester School of Medicine and Dentistry

11:00 a.m.–12:30 p.m. EDT; 3:00 p.m.–4:30 p.m. UTC
Presidential Symposium: Understanding Psychophysiological Processes within a Developmental Science Framework

12:30 p.m.–2:00 p.m. EDT; 4:30 p.m.–6:00 p.m. UTC
Big Ideas Session: Social & Cognitive Processes

5:00 p.m.–6:30 p.m.; 9:00 p.m.–10:30 p.m. UTC
Faces of the Future Flash Talks

6:30 p.m.–8:00 p.m.; 10:30 p.m.–12:00 a.m. UTC
SPR Anniversary Event: Past Early Career Award Symposium

6:30 p.m.–8:00 p.m. EDT; 10:30 p.m.–12:00 a.m. UTC
Big Ideas Session: Health & Aging

8:00 p.m.–9:30 p.m. EDT; 12:00 a.m.–1:30 a.m. UTC
Big Ideas Session: Interpersonal Psychophysiology

9:30 p.m. EDT; 1:30 a.m. UTC
Student Social

Saturday, October 16, 2021

10:00 a.m.–11:00 a.m. EDT; 2:00 p.m.–3:00 p.m. UTC
Invited Address
Diffuse Optical Imaging of the Human Brain
Gabriele Gratton, MD, PhD
Professor, Beckman Institute for Advanced Science and Technology, University of Illinois, Urbana-Champaign

11:00 a.m.–12:30 p.m. EDT; 3:00 p.m.–4:30 p.m. UTC
Early Career Award Addresses

Stress and Reward: Understanding Pathways to Depression
Anna Weinberg, PhD
McGill University, Montreal, Quebec

On the Relationship Between the Error-Related Negativity and Anxiety Across Development: From a Neural Marker to a Novel Target for Intervention
Alexandria Meyer, PhD
Florida State University, Tallahassee, FL

12:30 p.m.–1:30 p.m. EDT; 4:30 p.m.–5:30 p.m. UTC
Diversity and Outreach Committee Event
Building Inclusive Workplaces: An Evidence-based Framework
Aparna Joshi, PhD
Arnold Family Professor of Management, Smeal College of Business, Pennsylvania State University, Philadelphia, PA

5:00 p.m.–6:30 p.m. EDT; 9:00 p.m.–10:30 p.m. UTC
Poster Session 3

6:30 p.m.–7:30 p.m. EDT; 10:30 p.m.–11:30 p.m. UTC
SPR Business Meeting and Awards

7:30 p.m.–9:00 p.m. EDT; 11:30 p.m.–1:00 a.m. UTC
Saturday Night Social

Poster 2-031

EFFECTS OF TRANSCUTANEOUS AURICULAR VAGUS NERVE STIMULATION (TAVNS) ON INTEROCEPTION

Carlos Ventura-Bort, Paula Schneider, and Mathias Weymar
University of Potsdam

Descriptors: Interoception, Neurostimulation, Heart Rate

Interoception is understood as the mental representation of one's bodily changes and it is assumed to be mediated by activation of the afferent branch of the vagus nerve (VN), path by means of which information about internal conditions of the body are transmitted to cortical regions. To directly test whether interoceptive processing is causally linked to VN activation we therefore applied non-invasive transcutaneous auricular VN stimulation (taVNS). A taVNS-sham, 2-day, within-subject, crossover design was implemented, in which participants underwent a heartbeat counting task and a time estimation task. The tasks were performed in three blocks, one prior (i.e., baseline) and two during active and sham stimulation. The effects of stimulation on interoceptive accuracy, sensibility, and awareness were tested using linear mixed models. Preliminary results ($N = 24$) revealed that interoceptive accuracy and awareness tended to decline during sham stimulation compared to baseline. This tendency, however, was reduced (i.e., interoceptive awareness) or even reversed, (i.e., interoceptive accuracy) during taVNS. Interoceptive sensibility was not affected by stimulation. These findings provide preliminary evidence for a causal role of VN activation on some aspects of interoceptive processing.

Poster 2-032

BENEFIAL EFFECTS OF NON-INVASIVE VAGUS NERVE STIMULATION FOR BURNOUT

Oleksandr Pravda[1], Nickolai Vysokov[2], Anna Tarasenko[2], Dauren Toleukhanov[2], Kristina Mashtalerchuk[1], Sergii Tukaiev[1,3], Viktor Komarenko[1,3], Sergiy Danylov[3], and Viktoriia Kravchenko[1]
[1]National Taras Shevchenko University of Kyiv, [2]BrainPatch Ltd., [3]Beehiveor Academy and R&D Labs

Descriptors: Vagus Nerve Stimulation, Neuromodulation, Burnout

Vagus nerve stimulation (VNS) as a modern effective method of neuromodulation produces therapeutic effects for the treatment of neuralgia, psychiatric disorders, heart failure, and others. The aim of the current study was to evaluate the effects of the non-invasive vagus nerve stimulation on emotional burnout. Six right-handed male volunteers aged 18–22 years participated in VNS study. We used the combination of pleasant meditative classical music and a slow bi-polar wave (0.1–0.2 Hz) of electrical non-invasive auricular vagus nerve stimulation for 5 min. The set of 4 VNS was performed at intervals of 3 days. EEG was registered during the rest state (3 min). To measure the severity of emotional burnout in students, we used the 22-item Maslach Burnout Inventory (MBI). VNS significantly improve the depersonalization and reduction of personal achievements (components of the emotional burnout). Changes in the psychoemotional state of the respondents were accompanied by the following changes in brain activity. The observed increase in the theta-Fz/alpha-Pz ratio reflects an enhancement of the activation level under VNS. VNS leads to an increase in the level of activation (the ratio of beta / alpha rhythms). The changes in the power of the alpha rhythm may relate to improving of mental process, creativity, creative thinking. An increase in alpha rhythm may reflect internally oriented attention in creative activities. We suggest that the novel mastoid stimulation device may have a prolonged stimulating effect on the brain processes while attenuating the burnout at the same time.

Poster 2-033

MAINTENANCE OF EEG THETA/BETA RATIO AND ATTENTIONAL PERFORMANCE IN APPLICATION OF A HEPA/UV AIR PURIFIER COMPARED TO WEARING THE FFP2 FACE MASK

Diana Henz
University of Oxford

Descriptors: EEG, Air Purifier, FFP2 Face Mask

Literature shows that changes in breathing behaviour is accompanied by changes in EEG brain activity. In the present study, the effects of the application of an air purifier were compared with those of wearing a face mask with respect to EEG theta/beta ratio and attentional performance. The air purifier studied was a combined HEPA/UV and electromagnetic interference suppression technology device (Gabriel-Tech CF-8609S) that eliminates 99.99% of bacteria and viruses, whilst the mask used conformed to FFP2 standards. The following experimental conditions were tested: application of air purifier without mask, application of air purifier with mask, wearing of face mask only, control condition. Each experimental condition was tested for 15 min under resting conditions as well as performance of an attentional test (d2-R test). High-density EEG was recorded from 128 electrodes (10-5 system) before, during, and after each experimental condition. Results showed highly significant increases in frontal theta/beta ratio when wearing the FFP2 face mask compared to application of the air purifier without face mask, and the control condition. Attentional performance (overall performance, mix-up errors) decreased in the face mask conditions compared to the air purifier condition, and control condition. Results indicate that application of the FFP2 face mask increases frontal theta/beta ratio which is associated with mind wandering and activation of the default mode network. Application of the air purifier leads to a maintenance of theta/beta ratio and attentional performance.

Poster 2-034

SHIELDING CHIPS REDUCE EFFECTS ON EEG BRAIN ACTIVITY INDUCED BY ELECTROMAGNETIC RADIATION IN THE 5G RANGE

Diana Henz
University of Oxford

Descriptors: EEG, Shielding Chips, 5G

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 to mobile phones reduced the effects of mobile phone-emitted EMFs on brain activity. In the present study, the effects of shielding chips on brain activity when subjects were exposed to mobile phone radiation in the 5G range were investigated. Subjects were exposed to EMFs emitted by a smartphone (Apple iPhone 12 Pro 5G) receiving a call. The following experimental conditions were tested: smartphone call with application of a shielding chip (Gabriel-Tech), smartphone call without application of a shielding chip, control condition with smartphone switched off. Each condition was tested for 15 min. High-density EEG was recorded from 256 electrodes applied according to the international 10-5 system. Recordings were taken before, during, and after each experimental condition. Results showed increases in EEG beta and gamma activity in frontal, temporal, parietal, occipital, and in limbic 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, occipital, and limbic 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 brain activity induced by smartphone-emitted EMFs in the 5G range.