

The Fourth St. Petersburg Winter Workshop on Experimental Studies of Speech and Language Night Whites 2018

Четвертый Санкт-Петербургский зимний симпозиум по экспериментальным исследованиям языка и речи

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Smolbny
факультет свободных искусств и наук



The Fourth Saint Petersburg Winter Workshop on Experimental Studies of Speech and Language (Night Whites 2018)

We are very pleased to welcome you to *The Fourth Saint Petersburg Winter Workshop on Experimental Studies of Speech and Language (Night Whites 2018)* dedicated to studying the mysteries of human language function.

The workshop is hosted by Saint Petersburg State University, Russia, on February 26 - 27, 2018. The talks and posters focus on topics broadly defined as experimental studies of human language including (but not limited to) psycholinguistics, neurolinguistics, cognitive neuroscience, computational modelling of linguistic processes, neuropsychology, experimental phonetics, etc. Four keynote lectures are given by:

- Victor Kuperman, McMaster University, Canada
- Giacomo Rizzolatti, University of Parma, Italy
- Antoni Rodríguez-Fornells, University of Barcelona, Spain
- Gabriella Vigliocco, University College London, United Kingdom

As can be seen from the programme, this workshop is bringing together researchers working on language for an event that transcends disciplinary boundaries to give a snapshot of the current state-of-the-art in this diverse field and encourage new contacts, ideas and collaborations.

We wish to thank the Faculty of Liberal Arts and Sciences of Saint Petersburg State University for their hospitality in hosting this event.

The Organising Committee:

Prof. Tatiana Chernigovskaya, Saint Petersburg State University

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Dr. Natalia Slioussar, Higher School of Economics, Moscow, and Saint Petersburg State University

Rapid acquisition of novel word meaning through auditory-motor associations

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Despite the impressive progress achieved recently in the study of brain mechanisms of speech and language, the current understanding of the processes that implement assigning meaning to novel words is limited. We developed an experimental procedure that allowed investigating acquisition of word meaning by way of rapid associative trial-and-error learning. Eight pseudowords were presented to the participants; four of them were assigned to left and right hand and foot movements, while the other pseudowords did not require actions and were used as controls. Participants were instructed to learn the relations between the pseudowords and actions through the trial-and-error motor learning procedure. Auditory feedback was delivered on each trial informing whether response was correct or erroneous. Magnetoencephalogram was recorded during passive listening of the pseudowords before and after learning. The cortical sources of the magnetic evoked responses were reconstructed using distributed source modeling (MNE software). Neural responses to newly learnt words compared to control pseudowords were significantly enhanced in temporal and frontal cortical regions surrounding the Sylvian fissure of the left hemisphere. This activation was inversely related to the number of trials needed for participants to reach the learning threshold. Thus, our findings revealed a neural signature of rapid associative learning of word meaning and highlighted the role of sensory-motor transformation for association-grounded word semantics. Supported by RFBR grant 17-29-02168.

Keywords: word meaning, action words, magnetoencephalography.