SiNAPSA NEUROSCIENCE SEMINAR January 2012

SiNAPSA Seminarji

Working memory: findings, challenges and possible venues of research

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Working memory forms the basis of many cognitive abilities that are crucial for successful coping with everyday challenges.
Many researchers believe that it underlines voluntary behavior and executive processes, which enable planning, execution and control of goal directed behavior. Working memory correlates highly with general intellectual abilities and is among first to be impaired in various brain injuries and diseases from schizophrenia to Parkinson's disease. Due to its central role, it represents an important factor of quality of life and one of the key areas of research in cognitive neuroscience. The aim of the talk is to provide a short overview of theoretical underpinnings, sketch some of the core as well as novel findings about working memory, and review some of the possible challenges and venues of future research.

Moderator: **Barbara Dolenc**

Time: **January 18, 18:00 - 20:00**

Place: **Institute of Patophysiology**, Zaloška 4, Ljubljana (entrance from Zaloška road)

Visual working memory in patients with Parkinson's disease: neurophysiological correlates and significance of different neurotransmiters

Dejan Georgiev, MD
Department of Neurology
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Parkinson's disease (PD) is a chronic, progressive disease characterized by degeneration of substantia nigra (SN) and lowered level of dopamine. Newer studies show that acetylcholinergic and serotoninerghic neurotransmiter systems are also affected in PD. Even in the early stages of PD there are subtle cognitive dysfunctions (mainly executive dysfunctions and dysfunctions of the working memory).
Vogel's paradigm is a robust means to estimate the visual working memory (VWM) by EEG. The paradigm is based on the observation of the Contralateral Delayed Activity (CDA), which allows us to follow the changes of storage capacity during the task execution as well as to estimate the ability to exclude irrelevant objects from the VWM in healthy participants and patients. Results from other studies show that both, the storage capacity and the ability to exclude irrelevant objects from VWM are affected in PD. However, it is not known how different medications affect VWM. Changes of neurophysiological correlates as a function of different medications applied can give us a glimpse of the importance of different neurotransmitter systems in regulation of VWM processes.

Speakers in 2010/11:

Ronald E. See
Matej Markota
Gregor Majdič
Jasmina Kerčmar
Randi Hagerman
Jernej Kovač
Aleš Belič
Vito Logar
Urban Kordeš
Cristoph Huber
Borut Peterlin
Maja Zadel
Marko Kreft
Mateja Prebil
Grega Repovš
Alan Antičević
Elizabeth Pauli
Leja Dolenc Grošelj
Bojan Rojc

SiNAPSA NEUROSCIENCE SEMINARS ...

are regular professional meetings where established neuroscientists present their work and where researchers whose scientific careers have just begun briefly present their current projects.

The seminars offer overviews of interesting research fields, present recent neuroscientific achievements from Slovenia and abroad and introduce ongoing research projects.

The seminars are intended for wider scientific and expert public. They may stimulate new collaborations among participants.

An invited expert facilitates and moderates a discussion following every seminar.

When foreign guests participate either as lecturers or in the audience, the seminars are held in English.

We welcome your suggestions for new seminars at seminarji@sinapsa.org.