

*Brain Products Young Scientist Award***And the award goes to ... Dr. Paul Sauseng (University of Salzburg)***by Stefanie Rudrich*

During June 10- 12, 2010 several hundred scientists once again attended the annual meeting of the German Society for Applied Psychophysiology (Deutsche Gesellschaft für Psychophysologie und ihre Anwendung; DGPA), which this year was held at the University of Greifswald (Germany). Also as in previous years, the DGPA awarded prizes – one of them sponsored by Brain Products – to young scientists who had presented outstanding papers or posters.

The 2010 Brain Products Young Scientist Award for a Distinguished Contribution in EEG research was presented to Dr. Paul Sauseng from the University of Salzburg (Physiological Psychology) for his paper “Brain oscillatory substrates of visual short-term memory capacity” (Current Biology, Volume 19, Issue 21, 1846-1852, 12 November 2009).

Paul Sauseng and his co-authors<sup>(1)</sup> base their study on the fact that the amount of information that can be stored in visual short-term memory is strictly limited to about four items. Therefore, memory capacity relies not only on the successful retention of relevant information but also on the efficient suppression of distracting information plus visual attention and executive functions.

In order to identify completely separable neural signatures for these memory capacity-limiting factors, the authors suggest that oscillatory brain activity may offer a utile solution. They show that capacity-determining mechanisms, namely the retention of relevant information and the suppression of distracting information, are based on neural substrates that are independent of each other: the successful maintenance of relevant material in short-term memory is associated with cross-frequency phase synchronization between theta (rhythmical neural activity around 5 Hz) and gamma (>50 Hz) oscillations at posterior

parietal recording sites.

On the other hand, electroencephalographic alpha activity (around 10 Hz) predicts memory capacity based on the efficient suppression of irrelevant information in short-term memory. Moreover, repetitive transcranial magnetic stimulation at alpha frequency can modulate short-term memory capacity by influencing the ability to suppress distracting information. Taken together, the study provides evidence for a double dissociation of brain oscillatory correlates of visual short-term memory capacity.

Since February 2008 Paul Sauseng has been an APART (Austrian Program for Advanced Research and Technology) fellow of the Austrian Academy of Sciences at the Department of Psychology, University of Salzburg and the University Hospital Eppendorf, University of Hamburg. As part of the DGPA Young Scientist Award sponsored by Brain Products, Paul Sauseng received a trophy and a certificate as well as € 1,000 for research trips. Our congratulations once again, Paul!



*Alexander Svojanovsky, Brain Products' General Manager (left), presents a symbolic cheque to Young Scientist Award winner Dr. Paul Sauseng (right)*

(1) Wolfgang Klimesch, Kirstin F. Heise, Walter R. Gruber, Elisa Holz, Ahmed A. Karim, Mark Glennon, Christian Gerloff, Niels Birbaumer and Friedhelm C. Humme.