1-Day Preconference Workshop

Cross-frequency coupling as a unifying pathophysiology for brain disorders treated by Neurofeedback and brain stimulation

Jay Gunkelman, Theresia Stoeckl, Dirk De Ridder

The brain can be considered as a 'complex adaptive system', analogous to the internet, economy or ant colonies, which permits us to constantly adjust to an ever changing environment, increasing our chances for survival and procreation.

The brain functions as a Bayesian prediction machine, updating its predictions by active exploration of the environment through the senses. The information gathered in the environment results in a representation in the brain in the form of a perceptual pattern or network. Symptoms and diseases can be seen as maladaptive perceptions, thoughts or actions as a consequence of dysfunctional but stable networks (=attractor state).

These pathological networks can be modulated by medication, but also by non-invasive and invasive neuromodulation.

The workshop explains how based on this theory neurofeedback, infraslow network (sLORETA) neurofeedback, transcranial magnetic stimulation, and transcranial electrical stimulation (tDCS, tACS, tRNS) might influence these maladaptive symptom-generating networks.

After this workshop you should be able to:

1. Understand how symptoms and diseases can be explained as emergent properties from maladaptive brain networks
2. How to evaluate these networks by analyzing an EEG (raw data, sLORETA, resting state and evoked brain activity, functional and effective connectivity)
3. How neurofeedback exerts its effect on these networks
4. How infraslow (<0.1 Hz) network neurofeedback works
5. How brain stimulation influences these maladaptive networks

Where: Hotel Kurrajong, Canberra

When: 8.30am – 5.30pm Friday 25/8/17

Cost: $290 per delegate (refreshments & lunch included)

Register at: http://appliedneuroscience.org.au/event-2313909