



## **SYMPOSIUM: CURRENT METHODOLOGICAL DEVELOPMENTS IN NEUROFEEDBACK**

### **Presenters**

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### **Short description**

This symposium will give an update about current methodological developments in neurofeedback (NF) research across different domains.

## Objectives and Outline

The first talk "Psychosocial effects on SMR upregulation neurofeedback training" will present new evidence on the existence and strength of psychosocial effects on the ability to upregulate the sensorimotor rhythm of the EEG (12 Hz-15Hz). A focus will be given to gender effects and on questions regarding how to assess suggestion, placebo, and control beliefs when dealing with technology. The second talk "Modelling the learning processes underlying NF training procedures to improve their efficiency: Insights from the BCI literature" focuses on inter-individual learning difference from the perspective of BCI and NF. The influence of cognitive profiles, the training context, and the training procedure on NF efficiency will be discussed. The third talk "An EEG-informed fMRI model for EEG-fMRI NF prediction" will deal with recent approaches of EEG and fMRI integration for NF. EEG-fMRI NF combines information from modalities sensitive to different aspect of brain activity, providing a higher NF quality. Here novel methodological developments are presented, that enable to reduce the use of fMRI while providing to subjects an enhanced EEG-NF sessions inspired from bi-modal NF sessions. In the final talk "From peak performance to a clinical intervention: fm-theta for the enhancement of cognitive control in healthy participants and participants with self-reported cognitive dysfunctions" an approach will be presented on how to translate peak performance trainings to a more clinical context.

## Keywords

psychosocial effects, SMR Nf, modelling NF learning, non-responders, bi-modal NF, EEG-fMRI NF, frontal-midline theta & executive functions, cognitive control