

**Prof. Christoph Herrmann (University of Oldenburg, Germany)**

Prof. Herrmann's research focuses on physiological correlates of cognitive functions such as attention, memory and perception. The methods that are used comprise electroencephalography (EEG), magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI), EEG-Neurofeedback, eye-tracking, neural network simulations, and psychophysics. One main focus is a better understanding of the functional roles of oscillatory brain activity for cognitive functions. To this end, brain oscillations of different frequencies are analyzed in healthy people and patients, and neural network models are used to test the supposed functions. Recently, non-invasive techniques of transcranial magnetic and electric stimulation (TMS and TES) became available that allow to stimulate the brain with magnetic impulses or alternating currents of different frequencies. The research group of Prof. Herrmann investigates the influence of transcranial alternating current stimulation (tACS) on oscillatory brain activity and the possibility to modulate certain cognitive processes via a modulation of certain frequency bands. This research aims to establish a causal relationship between oscillatory brain activity and human behavior and, therefore, to allow clinical applications.