

Macro- and microarchitecture of cognitive processing

GORAN ŠIMIĆ

UNIVERSITY OF ZAGREB, FACULTY OF MEDICINE, CROATIAN INSTITUTE FOR BRAIN RESEARCH, ZAGREB, CROATIA

gsimic@hiim.hr

In my talk I will try to integrate and interpret recent insights obtained with different structural and functional neuroimaging modalities such as fMRI, EEG/MEG, DTI, and SPECT/PET through state-of-the-art description of the several major neuronal networks of the cerebral cortex (the default mode network, networks for recognition of people and objects, spatial attention, linguistic abilities, episodic memory and emotions, executive functions and behavior). Then, I will describe discoveries in relation to evolution and functional specialization of “concept” neurons and their role in formation of long-term declarative episodic memories, as revealed by microelectrode recordings in epileptic patients. Finally, cognitive enhancement and therapeutic possibilities for selected neuropsychiatric disorders using transcranial magnetic stimulation (TMS - spTMS, rTMS) and transcranial electrical stimulation (TES - tDCS, tRNS, tACS) will be discussed.

[HTTP://DX.DOI.ORG/10.17486/GYR.3.2200](http://dx.doi.org/10.17486/GYR.3.2200)