

SEMINARIO

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Título: "Towards a whole brain electrophysiology using high precision MEG"

The physiological mechanisms of cognition still remain largely undetermined. I will present some ongoing (and preliminary) work that leverages our recent advances in high-precision MEG (hpMEG). These promise to get closer towards the ambition of non-invasive whole brain electrophysiology in humans. I will focus briefly on the approach we employ for hpMEG using individualized 3D printed head casts, the gains in SNR and better coregistration this provides, and the theoretical gains this approach affords. I will then focus on two examples: first, our approach allows for reliable assessment of deep (thalamic and BG) signals - a key requirement for fully understanding many forms of cognition. I will then present data showing how our approach enables mapping of high and low frequency oscillations onto deep and superficial cortical laminae, respectively, in line with our simulations, and towards non-invasive laminar-resolved MEG in the human brain.

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