Imaging Coherent Oscillatory Brain Activity in Normal Human Subjects

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Coherent oscillatory brain activity has been suggested to mediate a variety of perceptual functions, including binding of visual stimulus features, auditory feature integration cross-modal integration and visual attention. Coherent activation of motor cortex and muscle also emerges during voluntary movement. These observations suggest that coherent oscillatory phenomena may provide functional links throughout the human nervous system.

I will describe results from recent magnetoencephalographic studies of coherent brain activation in normal human subjects. We have observed short-term plasticity of cortico-subcortical network properties during trace and delay conditioning, a working memory task, and entrainment of movement to visual cues. Involved structures include primary and association cortex, hippocampus, amygdala and cerebellum.