Thursday, December 12th, 2013
EPFL, Lausanne, Room AAC 132
Swiss Computational Neuroscience Seminar

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14h15 – 15h45

Oscillations, noise, and synchrony

Noise can impact oscillators in many ways. Here, using the olfactory bulb as motivation, we summarize work from our group on the effects of correlated noise on uncoupled oscillators. We first describe the reduction of general limit cycles to phase models in certain limits. The phase models depend on the phase-resetting curve (PRC) of the oscillator which can be experimentally measured in several ways. We use the resulting phase models to study how correlated inputs impact the long and short time output correlations of neural oscillators. We also describe how heterogeneity affects the transfer of correlations at the short time scale (synchrony) and apply the theory to mitral cell neurons.