Monday, May 6th, 2013
University of Bern
Swiss Computational Neuroscience Seminar

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14h15 – 15h45

Attractor models for place representation - from place cells to grid cells

Attractor models of place and grid cells are built on the premise that place representations are 'written down' in the corresponding neural networks and not simply result from sensory/vestibular inputs. Since spatial positions are described by continuous variables, the relevant framework is continuous attractor neural networks. On the most basic level, a model can account for the persistence of place cells when all or most of the sensory inputs are removed. When endowed with additional features, such as asymmetric connections and short-term plasticity, the model can also explain the emergence of phase precession effect and spontaneous activation of slow trajectories, similar to what was observed in experiments ('time cells'). Finally, I will present a new model of grid cells according to which enthorhinal cortex contains intrinsic representations of position/movement conjunctions of the animal.

Hosted by:

Prof. Alexandre Pouget	Prof. Walter Senn	Prof. Wulfram Gerstner	Prof. Richard Hahnloser
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