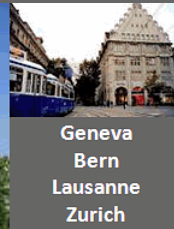




Swiss  
Computational  
Neuroscience  
Seminars



Geneva  
Bern  
Lausanne  
Zurich

**Thursday, September 20<sup>th</sup>, 2012**  
**EPFL, Lausanne, Room BC04, 17h00**  
**Swiss Computational Neuroscience Seminar**





**Tatyana SHARPEE**

*Computational Neurobiology Laboratory, SALK Institute*

**Minimal models of neural responses to natural stimuli**

In this talk I will discuss how to build minimal models of neural responses to natural stimuli. The core of the approach consist in finding models that correspond to maximum noise entropy, that is models that are least constrained except that they satisfy a chosen set of constraints on stimulus/response correlations. In the first part of the talk I will describe how this approach can be used to find any number of relevant stimulus dimensions. Thus, the technique generalizes a well known method of spike triggered covariance to the case of natural stimuli. I will also compare this method to maximizing mutual information about the neural responses and a quadratic form of the stimulus. In the second part of the talk I will describe how the maximum noise entropy approach can be used to characterize the nonlinear operations within the relevant subspace.

Hosted by:

Prof. Alexandre Pouget	Prof. Walter Senn	Prof. Wulfram Gerstner	Prof. Richard Hahnloser
 <b>UNIVERSITÉ DE GENÈVE</b>	 <b>UNIVERSITÄT BERN</b>	 <b>ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE</b>	 <b>Universität Zürich</b> <small>UZH</small>