Contribution ID: **4** Type: **not specified**

Timescales of neural activity, their inference and relevance.

Wednesday, 6 April 2022 14:45 (45 minutes)

Timescales characterize how fast the observables change in time. In neuro science, they can be estimated from the measured activity and can be used, for example, as a signature of the memory trace in the activations. Inferring the
timescales seems to be an easy task; however, I will show you how the timescales are subject to a statistical bias that is impossible to remove by a simple mathematical transformation. Instead, I will advertise using a Bayesian method that infers the timescales by matching the statistics of the data. I will use the set of generating models with known timescales and search for the parameters that
give me the sample autocorrelation closest to the one from the data.
As a next step, I will use the method on the data recorded from a local population of the cortical neurons from the visual area V4. I will demonstrate that the ongoing spiking activity unfolds across at least two distinct timescales - fast and slow - and the slow timescale increases when monkeys attend to the
location of the receptive field. Finally, I will discuss this change's relevance for behavior and cortical computations.

Presenter: LEVINA, Anna (University of Tuebingen)

Session Classification: Machine Learning, Data Science & Interdisciplinary applications