

Einladung zum Vortrag
im Rahmen des gemeinsamen Kolloquiums des Instituts für Biologie und
Umweltwissenschaften und des Departments für Neurowissenschaften

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“Simulating the activity of cerebellar nuclear neurons in awake mice”

In this talk I will show our recent modeling work of replicating the spike trains statistics for cerebellar nucleus (CN) neurons recorded in awake mice in a biophysically realistic single neuron model. I will show that the statistical spike train properties of CN neurons found in recordings (such as coefficient of variation, local variation, rate and inter-spike interval distributions) can be explained by the statistics of the inhibitory Purkinje cell input to CN neurons. Further, Purkinje cell input can also account for the spike rate modulation seen in CN neurons during rhythmic motor behavior. Overall this work demonstrates how behaviorally relevant spike rate coding can be transmitted through a GABAergic inhibitory pathway.

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