



## **Integrative Modeling of *Paramecium*, a “Swimming Neuron”**

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*Paramecium* is a unicellular organism that swims in fresh water using cilia. When it is stimulated (mechanically, chemically, thermally, etc.), it often swims backward then turns and swims forward again: this is called the avoiding reaction. This reaction is triggered by a calcium-based action potential. For this reason, it enjoyed a period of glory in the 1970s as a model organism for neuroscience. We have developed an integrative model that links electrophysiology and behavior, quantitatively constrained by experimental data. This model is a dynamical system coupled to the environment, which allows revisiting various neuroscientific themes (perception, adaptation, learning) in the context of an autonomous system, rather than within the stimulus-response paradigm.

CRC 1461: Neurotronics  
Colloquium: 28-September-2023\_26  
Thursday, 3:30 pm to 5:30 pm (CET)  
The colloquium will start at 4:00 pm  
[Link to the zoom meeting](#)

Invited by Claus Hilgetag and Wilhelm Braun,  
UKE Hamburg-Eppendorf, Center for Experimental Medicine,  
Institute of Computational Neuroscience