



SFB 1315

Mechanisms and Disturbances in Memory Consolidation:
From synapses to systems

Tuesday

OCT 26, 2021
4:00 pm CET

ZOOM ID: 7754910236

Register at:

SFB1315.ifb@hu-berlin.de

SFB 1315 LECTURE SERIES 2019-2022

ARE PLACE CELLS JUST MEMORY CELLS?

STEFANO FUSI

Professor of Neuroscience
Mortimer B Zuckerman Mind Brain Behavior Institute
Center for Theoretical Neuroscience
Columbia University



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Stefano Fusi (Columbia University)

The observation of place cells has suggested that the hippocampus plays a special role in encoding spatial information. However, place cell responses are modulated by several non-spatial variables, and reported to be rather unstable.

Here we propose a memory model of the hippocampus that provides a novel interpretation of place cells consistent with these observations.

We hypothesize that the hippocampus is a memory device that takes advantage of the correlations between sensory experiences to generate compressed representations of the episodes that are stored in memory.

A simple neural network model that can efficiently compress information naturally produces place cells that are similar to those observed in experiments. It predicts that the activity of these cells is variable and that the fluctuations of the place fields encode information about the recent history of

sensory experiences.

Place cells may simply be a consequence of a memory compression process implemented in the hippocampus.

Stefano Fusi's talk is hosted by SFB1315 subproject B01 and moderated by Speaker Matthew Larkum.



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