

MIND MEETING

Seminar Series

2021

All welcome!
Attendance is free

22 April

3.30 pm online talk via Zoom

please contact psy-office@cbs.mpg.de for login details

Stefano Fusi

Columbia University,
USA

Are place cells just memory cells?

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.



 www.cbs.mpg.de
 theves@cbs.mpg.de
 doellerlab.com
 [@doellerlab](https://twitter.com/doellerlab)

Organizers:
Stephanie Theves
Christian Doeller

Max Planck Institute
for Human Cognitive and Brain Sciences
Department of Psychology
Stephanstr. 1A | 04103 Leipzig