

# Colloquium

Lecture is held Thursday 2 pm  
Venue: Virchow Lecture hall, Philippstr. 11, 10115 Berlin

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### Encoding of path network structure in retrosplenial cortex and subiculum

#### Abstract

The subiculum and retrosplenial cortex together form a robust connection between hippocampal representations of position in the environment and posterior parietal cortex representations of position in route space. Our recent work examining the spatial firing properties of neurons within subiculum and retrosplenial cortex indicate that, in different ways, these structures encode conjunctions of spatial information concerning route spaces and their positioning and orientation in the larger environment. Furthermore, novel forms of spatial information encoding emerge in each structure. These forms include 'axis-tuning' and encoding of 'spatial analogies' in subiculum, and, in retrosplenial cortex, the encoding of position within route sub-spaces and distances between all route locations. The former are integrated temporally with the hippocampal CA1 sub-region through 'theta phase precession'. The latter, when considered in the context of retrosplenial encoding of head direction, could, in principle, form the basis for knowledge of overall path geometry. The results of these recent findings will be considered with respect to anatomical pathways that appear to represent the transformation of spatial cognition into action.

**Location:** Virchow Lecture Hall Phillipstr. 11

**Date:** Thursday, July 12<sup>th</sup>, 2 p.m.

**Host:** Dietmar Schmitz, Noam Nitzan