

# IGSN - SYMPOSIUM

Monday, February 11<sup>th</sup> 2019 • 15.00 (3 pm)

FNO – 01 / 117

## Olfactory perception and information processing in the piriform cortex

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### Cortical sensory and motor processing for grasping

Odors and space are two of the most important types of information used by rodents to guide behavior. It is hypothesized that spatial and olfactory brain systems co-evolved to guide a wide range of natural behaviors, and olfaction and spatial memory are linked to overlapping brain areas. Despite this, little is known about how olfactory and spatial information are combined in the brain. Posterior piriform cortex (pPir) receives input from olfactory bulb and anterior piriform cortex, as well as hippocampus and entorhinal cortex, making it a strong candidate to combine these information. However, there are few reported recordings from pPir. To investigate, we trained rats on a novel four-alternative odor-guided spatial choice task. On a plus maze with four water/odor ports, rats learned an odor-guided allocentric navigation rule (e.g. go to the north for odor A). We recorded from a large population of pPir neurons. We found that pPir neurons were selective odors and the spatial location in which odors were sampled. Individual pPir neurons fired both independently and jointly to odors and locations. For the same odor, a pPir neuron can fire differently depending on the location where the odor is sampled, and this location selectivity can be odor-specific within the same cell. Odors and spatial locations can be decoded from pPir neurons recorded in a single session. Together, we provide the evidence for pPir as a site for integration across olfactory and spatial memory systems.

**Host:**

HANNA KRUSE

Department of Neurophysiology, Faculty of Medicine, Ruhr University Bochum

**Guests are welcome!**

