

Introductory Remarks to Symposium 6**Facets of spatial information processing**

Denise Manahan-Vaughan and Kate Jeffery, Bochum and London

Spatial information processing at the level of the hippocampus involves several layers of complexity, ranging from the engagement of neuronal oscillations, synaptic plasticity, place cells, distinct hippocampal subfields and synaptic populations. Sensory information that impacts on, and is received by the hippocampus, must not only be interpreted, but ultimately can be expected to be integrated into new spatial representations, or to aid the updating of established memories. Information from egocentric and allocentric sources, from different sensory modalities, from neuromodulatory and arousal systems, and from the microcircuitry of the hippocampus itself, determine the outcome of spatial information processing. By this means, representations that range from schematic through highly detailed memories emerge. The speakers proposed in this symposium (Kate Jeffery: University College London, U.K., Denise Manahan-Vaughan: Ruhr University Bochum, Germany, Lisa Saksida: Western University, Canada and Emma Wood, University of Edinburgh, U.K.) represent distinct but highly complementary areas of the field of spatial learning and memory. We will report on state-of-the-art findings with regard to the role of place, head direction and grid cells in spatial navigation, the role of hippocampal LTP and LTD in the creation of long-term complex spatial memories, and the involvement of distinct hippocampal subfields in the composition and functional nature of spatial representations.

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Symposium 6

*Wednesday, March 22, 2017
14:30 - 16:30, Lecture Hall 102*

Chairs: Denise Manahan-Vaughan and Kate Jeffery,
Bochum and London

- 14:30 **Opening Remarks**
- 14:35 Kate Jeffery, London, UK
NAVIGATING OVER COMPLEX TERRAIN (S6-1)
- 15:05 Emma Wood, Edinburgh, UK
SPLITTING AND LUMPING: HOW HIPPOCAMPAL PLACE CELLS SUPPORT AND CONSTRAIN SPATIAL COGNITION (S6-2)
- 15:35 Denise Manahan-Vaughan, Bochum
ENCODING OF SPATIAL AND ASSOCIATIVE MEMORIES THROUGH HIPPOCAMPAL SYNAPTIC PLASTICITY (S6-3)
- 16:05 Franziska Bender, Berlin
INPUT-SPECIFIC THETA AND GAMMA OSCILLATIONS IN THE LATERAL SEPTUM REGULATE EXPLORATORY AND GOAL-DIRECTED LOCOMOTION (S6-4)
- 16:20 **Concluding Remarks**

