2025 KSBNS
Symposium 11
Title:
Neural codes across sensory systems: insights into perception and behavior
mechanisms and circuit-level understanding of memory and memory related disorders
August 25th (Monday), 08:30-10:25
Room 107-109, Songdo CONVENSIA, Incheon, Korea

Registration KSBNS2025.org

한국뇌신경과학회
The Korean Society for
Brain and Neural Sciences

Organizer

Jeehyun Kwag

Department of Brain and Cognitive Sciences, Seoul National University, Korea

Description
: This symposium explores how spatiotemporally dynamic neural codes represent and process sensory information across visual, somatosensory, olfactory and spatial navigation systems. By examining how these neural codes shape perception, cognition, and behavior, the talks will reveal shared and distinct coding principles that underlie adaptive brain function.

Speakers

Michael M. Kohl

School of Psychology & Neuroscience, University of Glasgow, UK
"Stimulus information guides the emergence of behavior—related signals in the primary somatosensory cortex during learning"

Dr. Michael M Kohl studies how activities in the neural circuits enables flexible behavior. He has made contributions to our understanding of the slow oscillations, functional laterality in the hippocampus and the neural codes for sensory inputs and choices in neocortical circuits.

Izumi Fukunaga

Sensory and Behavioral Neuroscience Unit, Okinawa Institute of Science and Technology, Japan
"Olfactory codes and their behavioral relevance"

Dr. Izumi Fukunaga's research primarily focuses on understanding how olfactory circuits in the brain function and adapt in response to behavioral demands. Key research include elucidating temporally distinct inhibitory control on neuronal oscillations, parallel olfactory processing and behavioral context-dependent modulation of primary olfactory processing.

Hyeyoung Shin

School of Biological Sciences, Seoul National University, Korea
"Neural variability structure in primary visual cortex is optimized for robust representation of perceptual similarity"

Dr Hyeyoung Shin investigate the neural dynamics and circuit mechanisms underlying perception. She studies the neural codes under the perceptual inference framework, leveraging systems and computational neuroscience techniques.

Jeehyun Kwag

Department of Brain and Cognitive Sciences, Seoul National University, Korea
"Egocentric vector coding of space guides goal-directed navigation"

Dr. Jeehyun Kwag investigates the neural network and computational principles underlying neural coding of space and memory in healthy and Alzheimer's disease. She recently identified a subpopulations of neurons that egocentrically code the geometric vertices of the environment, which may be important in goal-directed spatial navigation and spatial memory processing.