AGENDA

AM Session

9:00-9:15   **Opening remarks**
Charles Wilson, Neurosciences Institute Director & Ewing Halsell Distinguished Chair
Isabel Muzzio, Associate Professor & Symposium Organizer

9:15-10:00   **An Introduction to Spatial Navigation**
A. David Redish, Distinguished McKnight University Professor, Univ of Minnesota

10:00-11:00   **André Fenton, Professor of Neural Science, NYU**
The dynamic structure of cognition: If space were time?

11:00-12:00   **Isabel Muzzio, Associate Professor, UTSA**
Hippocampal representations of reorientation

Break for Lunch 12-1:15pm

PM Session

1:15-2:15   **David Redish, Distinguished McKnight University Professor, U Minnesota**
Information processing differences between planning & procedural navigation systems

2:15-3:15   **James Knierim, Professor of Neuroscience, Johns Hopkins**
Interaction between self motion & landmarks in hippocampal space codes

3:15-3:30   **Closing remarks**
James Knierim, Professor of Neuroscience, Johns Hopkins

Break -10 min

3:40-4:30   **Panel Discussion & Podcast Recording**

About the Panel

André A. Fenton is a professor of neural science at New York University's Center for Neural Science and Founder of Bio-Signal Group Corp. After graduating from McGill with a degree in biology, he obtained his PhD at SUNY Downstate Medical Center, where he ultimately started his own lab, and in 2006, identified PKMzeta as the first memory storage molecule. At NYU, his laboratory investigates the role of the hippocampus in controlling how we choose relevant information to process.   Evidence from this work suggests that neural activity is exquisitely coordinated on multiple time scales from milliseconds to minutes, so that neurons that represent the same information discharge together in time, but are desynchronized when representing conflicting information. His lab is studying specific disturbances of this neural coordination in rat and mouse models of schizophrenia, mental retardation, depression, epilepsy, and traumatic brain injury.

James Knierim is a professor of neuroscience at the Johns Hopkins University School of Medicine. After a BA in psychology from Haverford College, he obtained his PhD in neurobiology at CalTech, where he studied the primate visual system with David Van Essen. In his postdoctoral fellowship with Bruce McNaughton at the University of Arizona, he studied the spatial characteristics of place cells and head direction cells of the rat hippocampus and limbic system. He started his own laboratory at the University of Texas Medical School at Houston, and in 2009 joined the Johns Hopkins faculty. His work has investigated how the zero-gravity environments affects spatial orientation; how the sense of direction (your "internal compass") affects spatial perceptions; and how objects and landmarks become incorporated into the brain's "cognitive map" of an environment in ways that are crucial for the normal formation of long-term memories. Currently, his lab is focused on understanding the information processing that occurs in different stages of the hippocampus, from the input representations of the entorhinal cortex through the different subregions within the hippocampus.

Isabel Muzzio is an associate professor of biology at The University of Texas at San Antonio. Her research focuses on the cellular and molecular mechanisms associated with episodic memory and spatial navigation. After graduating from the University of Massachusetts with a degree in psychology, she moved to Rutgers University for a PhD in Behavioral Neuroscience. She did her postdoctoral fellowship at Columbia University with Nobel Laureate Eric Kandel, working on the role of attention on the encoding and retrieval of hippocampal representations in the dorsal hippocampus. In 2014 she moved her laboratory from the University of Pennsylvania to come to UTSA as an associate professor. Her laboratory is focused on understanding hippocampal spatial representations during reorientation, sleep deprivation, in aging, as well as the effects of fear on spatial remapping in the hippocampus.

A. David Redish is Distinguished McKnight Professor in the Department of Neuroscience at University of Minnesota. He received his undergraduate degree in writing and computer science from Johns Hopkins in 1991 and his PhD in Computer Science from Carnegie Mellon University in 1997, where he was a student member of the Center for the Neural Basis of Cognition under the supervision of Dr. David Touretzky. He was a postdoc with Drs. Bruce McNaughton and Carol Barnes at the University of Arizona from 1997-2000. He has been at the University of Minnesota since 2000, where his lab studies decision-making, particularly issues of covert cognition in rats and failures of decision-making systems in humans. lab has two main research objectives. The first is to further our understanding of how multiple learning and memory systems interact to produce behavior. The second is to apply the theories that arise from the neurophysiology and computational modeling to explain dysfunctional and broken behavioral-control systems, as occurs in addiction.