

Department of Physiology
and Membrane Biology



2026 Carlson Lecture

12p.m.—Thursday, June 4, 2026
Genome Auditorium, room 1005

Distinguished speaker: Kafui Dzirasa, M.D., Ph.D.



Dzirasa is a A. Eugene and Marie Washington Presidential Distinguished Professor in the Department of Psychiatry and Behavioral Sciences at Duke University Medical Center and an Investigator at the Howard Hughes Medical Institute

Title: Discovering and regulating brain dynamics relevant for emotions

Abstract: Electrical signaling between different populations of brain cells is essential for cognitive and emotional functions. However, methods to selectively regulate the electrical communication between two specific components of a mammalian neural circuit are limited. In this study, we engineered an electrical synapse using two connexin proteins from white perch fish and validated its function in mice. We show that this electrical synapse can enhance communication between distinct cell types in neural circuits and influence behavior. Moreover, when applied to specific brain circuits in mouse models of psychiatric disorders, the synapse intervention not only normalizes abnormal behaviors but also prevents the onset of behavioral dysfunction when applied before the emergence of symptoms. Our work demonstrates the potential of precision circuit-editing as a strategy for preventive psychotherapeutic treatments.

This lecture honors Loren D. Carlson. Originally from Iowa, Carlson earned his Ph.D. in Zoology from the University of Iowa before serving during World War II in the U.S. Army Air Corps' Aeromedical Laboratory. His research focused on cardiovascular physiology and temperature adaptation, resulting in over 100 publications and earning him a "honoris causa" Ph.D. from the University of Oslo. Notably, he founded physiology departments at both the University of Washington and the University of Kentucky. Carlson's final appointment was at the University of California, Davis, where he was the inaugural chair of the Department of Human Physiology (now PMB) and led the Division of Sciences Basic to Medicine.



Loren D. Carlson