



PHYSICS COLLOQUIUM: Statistical physics of networks and our interconnected world



Date:
2/20/2026

Time:
10:30 AM – 11:50 AM

Location:
GRAN 135

Dr. Raissa D'Souza
Associate Dean of Research; Professor
Computer Science and MAE
University of California, Davis

About The Speaker:

Raissa D'Souza is the Associate Dean of Research for the College of Engineering at UC Davis as well as Professor of Computer Science and of Mechanical and Aerospace Engineering. She is a member of the Board of Reviewing Editors at Science, and an External Faculty member at the Santa Fe Institute. She received a BS in Physics from University of Illinois, Champaign-Urbana and a PhD in Statistical Physics from MIT, then was a postdoctoral fellow at Bell Laboratories and at Microsoft Research. She uses the tools of statistical physics and applied math to reveal the underlying principles of organization in complex systems, with a focus on the interplay of structure and function in network systems. She is a Fellow of AAAS (class of 2024), APS (class of 2016), and the Network Science Society (class of 2019), and has received numerous best paper and test-of-time awards, served on the editorial board of numerous scientific journals, was the President of the Network Science Society from 2015-18, and a member of the World Economic Forum's Global Agenda Council on Complex Systems.

Abstract:

Our world relies on a collection of interdependent networks, from critical infrastructure networks to social networks to biological and ecological networks. Each network on its own can have distinct time and length scales and display non-linear collective behaviors. This colloquium talk features how statistical physics provides a toolkit for analyzing these systems-of-systems including phase transitions and cascading failures and how future directions require partnering with the fields of nonlinear dynamics and control theory.

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