



Idaho State  
University

Mathematics  
and Statistics

Spring 2024

Colloquium

# Exploring Graph Sensitivity

Cathy Kriloff

Professor Emerita

Thursday, April 23

4:00 pm

PS 308

<https://isu.zoom.us/j/88060652033>

Graph sensitivity has its origins in work on the hypercube graph by Chung, Furedi, Graham, and Seymour in 1988 and by Gotsman and Linial in 1992, but it has only been investigated more generally following Huang's remarkable resolution of the long-standing Sensitivity Conjecture for Boolean functions in 2019 in the Annals of Mathematics. The sensitivity of a finite undirected simple graph with a maximum of  $\alpha$  non-adjacent vertices is the smallest maximum degree of an induced subgraph on more than  $\alpha$  vertices. We explore the value and behavior of sensitivity under the join operation and certain decompositions; describe the sensitivity of many (primarily nonregular) graph families, including several that model networks; and survey related literature and perspectives. The talk includes completed and ongoing work with ISU alumnus Jacob Tolman ('20) and ISU undergraduates Noah Rede ('26) and Zack Judkins ('28)

This talk is accessible to undergraduate and graduate students.