

The SUMO Speaker Series for Undergraduates

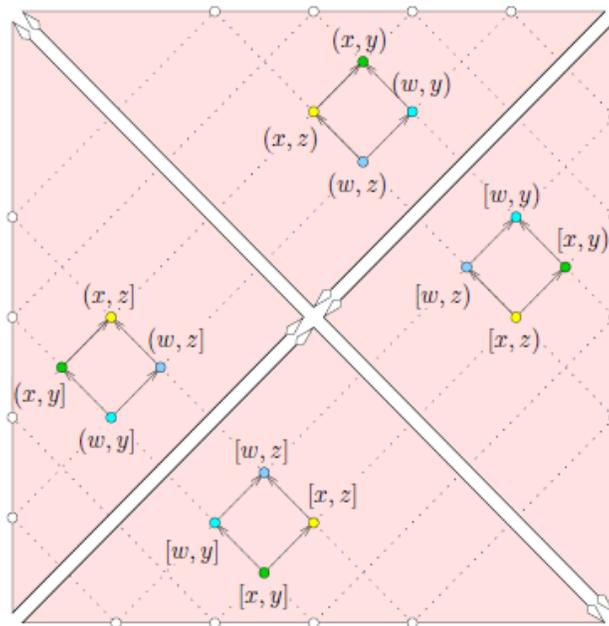
(Food Provided)

Wednesday, May 23th

4:15-5:05, room 380C

Topology and Data: Presenting Mapper

Sara Kalisnik



ABSTRACT:

Topology is traditionally regarded as a cornerstone of pure, rather than applied, mathematics. It's pretty, and fun, but what use is it? In recent years, particularly with the advent of fast computers, the situation has been changing. Techniques developed in the 20th century to study abstract geometrical objects can now be converted to computer programs and let loose on 21st century scientific data.

I will present one such method, called 'Mapper', which uses topological ideas to extract simple descriptions of high-dimensional data sets. Devised by Stanford mathematics professor Gunnar Carlsson and his collaborators, Mapper has been applied to a variety of data sets. One striking result is the discovery, from medical data, of a new subtype of breast cancer.

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