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Room 220, Lady Shaw Building, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Seminar

Topological Data Analysis and Scale-Free Networks

Mr. Chun Yin Siu
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Abstract

Topological data analysis has been developing rapidly over the last 2 decades, but statistical inference is still difficult because of the lack of suitable random models. In this talk, after reviewing some applications of topological data analysis, I will discuss my recent result on the topology of random preferential attachment complexes. Many real-world networks are hypothesized to be scale-free graphs, for which the preferential attachment is a popular random model. We found that the expected Betti numbers of the flag complexes of these random graphs grow sublinear in the number of nodes, with the exceptions at dimensions 0 (constant) and 1 (linear). If time allows, we will also discuss the homotopy properties of these flag complexes. This is joint work with Gennady Samorodnitsky, Christina Yu and Rongyi He. The talk is based on <https://arxiv.org/abs/2305.11259>.

Date: 06 December 2023 (Wednesday)
Time: 10:30am – 11:30am (Hong Kong Time)
Venue: Room 222, LSB

All are Welcome