COLLOQUIUM

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Applications of the vertex-clique incidence matrix of a graph

Mathematics and Statistics

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Zoom link:
https://uregina-ca.zoom.us/j/92508741353?pwd=UzFOMjVMelVkRWhqR215cjd6dTlCQT09

Abstract: In this talk, we make use of an interaction between the theory of clique partitions of a graph and graph spectra. We use the theory of clique partitions and introduce the notion of a vertex-clique incidence matrix of the graph. We give new lower bounds for the negative eigenvalues and negative inertia of a graph. Moreover, utilizing vertex-clique incidence matrices, we generalize several notions such as the signless Laplacian matrix and a line graph of a graph as well as the incidence energy and the signless Laplacian energy of the graph.

Applying a similar type of incidence matrices obtained from the theory of clique covering, we report on some recent research studying the minimum number of distinct eigenvalues of a graph.

This is joint work with Shaun Fallat.

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