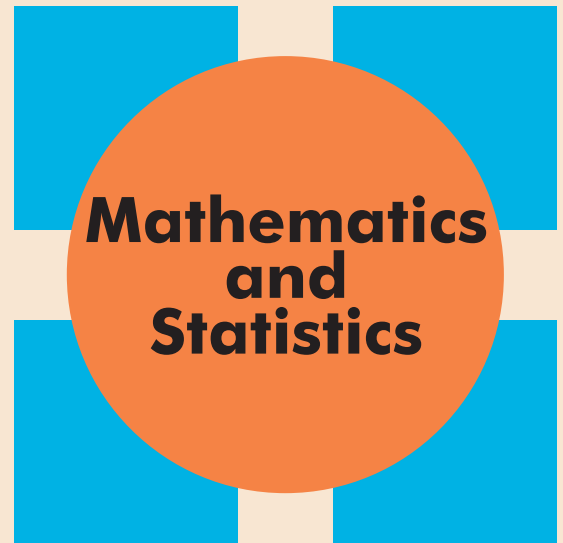


COLLOQUIUM

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**Applications of the
vertex-clique incidence
matrix of a graph**



Date: Friday March 5, 2021

Time: 3:30 - 4:30 PM

Zoom link:

<https://uregina-ca.zoom.us/j/92508741353?pwd=UzFOMjVMelVhRWhqR215cjd6dTICQT09>

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.