

PIMS Distinguished Lecturer



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Title:

**Eigenvalues, Determinants, and Distribution of Rank:
Towards Taussky Unification**

April 1st at 3:30 – 4:30 pm

University of Victoria,

Cornett Building, room A225

Abstract:

In 1958, Olga Taussky-Todd proposed an exploration into potential unified treatments of a list of properties shared by various classes of “positive matrices”. For instance, item (4) on her original list sought explanations concerning the fact that both positive semidefinite symmetric matrices and matrices with all minors nonnegative (aka. totally nonnegative matrices) have all real nonnegative eigenvalues.

In this talk, I will offer a new perspective concerning item (4) on Taussky’s list by way of analyzing the spectrum of tridiagonal matrices and provide a brief outline of the associated history and theory along these lines. In addition, I will highlight other important similarities shared by these classes of matrices including: eigenvalue interlacing, classical determinantal inequalities, and a notion of rank distribution known as shadowing.



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