

Auburn Montgomery

Department of Mathematics & Computer
Science

Joint AU-AUM Colloquium

Time: Friday, September 15, 2017, 1:00pm–2:00pm

Place: Auburn Montgomery, Goodwyn Hall, Room 201

Speaker: Professor Tin-Yau Tam, Auburn University

Title: Schur-Horn theorem and Iwasawa projection of QR decomposition

Abstract: The Schur-Horn's convexity theorem asserts that all the diagonal elements of an $n \times n$ Hermitian matrix A with prescribed eigenvalues form the convex hull of the eigenvalues of A under the action of the symmetric group. Taking diagonal is a linear map. Kostant's nonlinear convexity theorem asserts that the a -component (associated with the QR decomposition of A) of an $n \times n$ complex matrix A with prescribed singular values is the convex hull of the singular values under the action of the symmetric group, in the multiplicative sense. Taking the a -component of A is highly nonlinear and we call it the Iwasawa projection. We will give an account on the relation between these two nice convexity theorems. Moreover, we will also show that the Iwasawa projection is very biased from the probability perspective.

There is also a Math Club and Engineering Club social gathering starting at 12:30pm.

****Refreshments will be served at 12:30pm****

This event is supported by the AUM Department of Mathematics and Computer Science and Auburn University Department of Mathematics and Statistics.