

DREXEL ANALYSIS SEMINAR

April 14, 2017

12-12:50 PM, Korman 245

Speaker: Soumyashant Nayak (U Penn)

Title: Determinant Theory in Finite Factors and Extensions of Hadamard's Inequality

Abstract: In this talk, we will briefly discuss the classification theory of von Neumann algebras, which are weak-operator-closed $*$ -subalgebras of the set of bounded operators on a Hilbert space and contain the identity operator. The study of these objects was initiated by F. Murray and J. von Neumann in connection with group representation theory. The discussion will be followed by a primer on Fuglede-Kadison determinant for a finite von Neumann algebra R . The main goal of the talk is to shed light on classical determinant inequalities like Hadamard's inequality and Fischer's inequality by considering them in the context of conditional expectations onto a von Neumann subalgebra S of R . With this language, the Loewner theory of operator monotone functions on $[0, \infty)$ helps us to directly obtain some inequalities by Matic for the determinants of perturbed positive-definite matrices.