

DREXEL ANALYSIS SEMINAR

October 6, 2023

12-1 PM, Korman 245

Speaker: Juriij Volčič (Drexel)

Title: Self-testing: from quantum information theory to multivariate operator theory

Abstract: Self-testing is the strongest form of quantum functionality verification which allows a classical user to deduce the quantum state and measurements used to produce measurement statistics. From a mathematical perspective, it is an intriguing uniqueness phenomenon, pertaining to functional analysis, convexity, and representation theory. This talk addresses basic motivation and ideas of self-testing, and discusses which quantum states and measurements can be self-tested. The emphasis is on presenting this topic from an operator-theoretic perspective, and demonstrate how projections adding to a scalar and Jordan algebras find its way into this corner of quantum information theory. Based on joint work with Ranyiliu Chen and Laura Mančinska.