



Mathematics & Statistics Colloquium

Friday, March 5, 2021, 4:15pm-5:15pm

Zoom Meeting ID: 941 6389 5998

Password (if prompted): 371814



Ben Passer

Assistant Professor of Mathematics

United States Naval Academy

Matrix Convex Sets and Operator Systems

Abstract. Just as a triangle is determined by its vertices, every compact convex set X is determined by its extreme points. This fact may be presented in algebraic language, as the claim that a point of X is extreme translates to a claim about a corresponding representation of a commutative operator algebra. After a brief discussion of this background, I will describe how all of these objects persist in the “noncommutative” setting. The analogous objects, matrix convex sets and operator systems, also intertwine geometric and algebraic properties. Moreover, the duality between them gives a tidy framework in which to discuss problems in operator theory. I will present some recent joint work in this area with Baruch Solel, Orr Shalit, and Ken Davidson as time permits.

Biographical Sketch. Ben Passer finished a B.S. in Applied Mathematics at Missouri S&T in 2010, before heading to Washington University in St. Louis for graduate school. In 2016, he completed a Ph.D. in Mathematics with advisors John McCarthy and Xiang Tang. For the next four years, he worked as a postdoc abroad: first at Technion-Israel Institute of Technology in Haifa, Israel from 2016 to 2018, and then at the University of Waterloo in Waterloo, Ontario from 2018 to 2020. He is now in his first year as an Assistant Professor at the United States Naval Academy.