Existence of frames with prescribed norms and frame operator

Marcin Bownik
University of Oregon, U.S.A.
mbownik@uoregon.edu

Abstract

In this talk we present several recent results on the existence of frames with prescribed norms and frame operator. These results are equivalent to the Schur-Horn type theorems which describe possible diagonals of positive self-adjoint operators with specified spectral properties. The first infinite dimensional result of this type is due to Kadison who characterized diagonals of orthogonal projections. Kadison's theorem gives automatically a characterization of all possible sequences of norms of Parseval frames. We present some generalizations of Kadison's result such as: (a) the lower and upper frame bounds are specified, (b) the frame operator has 2 point spectrum, (c) the frame operator has a finite spectrum. This talk is based on the joint work with John Jasper.