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Joint Majorization in Continuous Matrix Algebras

The notion of majorization of one self-adjoint $n \times n$ matrix by another appears in many different results in mathematics. A "multivariate majorization" often called joint majorization occurs by generalizing the notion of majorization from self-adjoint matrices to tuples of commuting self-adjoint matrices. In this talk, various notions of joint majorization will be examined in continuous matrix algebras. The relative strengths of these notions are established via proofs and examples. In addition, the closed convex hulls of joint unitary orbits are completely characterized in continuous matrix algebras via notions of joint majorization. Some of these characterizations are extended to subhomogeneous C^* -algebras. (This is joint work with Xavier Mootoo and was funded by an NSERC USRA).