

Consequences of the Solution to the Kadison-Singer Problem

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Abstract

It is known that the famous, intractable 1959 Kadison-Singer problem in C^* -algebras is equivalent to fundamental unsolved problems in a dozen areas of research in pure mathematics, applied mathematics and Engineering. The recent surprising solution to this problem by Marcus, Spielman and Srivastava was a significant achievement and a significant advance for all these areas of research. We will look at many of the known equivalent forms of the Kadison-Singer Problem and see what are the best new theorems available in each area of research as a consequence of the work of MSS. In the cases where constants are important for the theorem, we will give the best constants available in terms of a *generic constant* taken from MSS. Thus, if better constants eventually become available, it will be simple to adapt these new constants to the theorems.