1135-46-758 **J. William Helton***, Prof. Bill Helton, Math Dept, UCSD, La Jolla, CA 92093. *Bianalytic maps in "matrix" variables.*

The talk concerns inequalities for functions having matrix variables. The functions are typically (noncommutative) polynomials or rational functions. A focus of much attention is the inequalities corresponding to convexity which in turn is bound closely to Linear Matrix Inequalities, LMIs.

Engineering systems problems seldom produce an LMI directly and depend on a change of variables to produce convexity. This talk concerns analytic changes of noncommutative variables to convert one convex set to another. This produces a wide range of subsidiary problems which need to be solved. Most of the work is done jointly by Meric Augat, J. William Helton, Igor Klep and Scott A. McCullough. (Received September 14, 2017)