

1077-47-200

**Joseph A Ball\*** (joball@math.vt.edu), Department of Mathematics, Virginia Tech, Blacksburg, VA 24061. *Realization and interpolation theory for generalized Schur classes*. Preliminary report.

An object of much study over the past several decades is the so-called Schur class (holomorphic functions mapping the unit disk into the closed unit disk) and its generalizations. Such functions have several equivalent characterizations: contractive Hardy-space multipliers, positivity of an associated de Branges-Rovnyak kernel function, and realization as the transfer function of a conservative input/state/output linear system. There have now appeared increasingly more sophisticated generalized Schur classes; besides allowing matrices or operators for the values, one can allow more and more sophisticated domains: Schur-Agler classes in commuting or noncommuting variables, generalized Hardy algebras constructed from the Fock space arising from a  $W^*$ -correspondence, noncommutative functions on an operator-space unit ball. In this talk we focus on one particular type of generalized Schur class (holomorphic functions from the unit operator ball to operators of the form  $T \mapsto s(T)$  with  $s$  a scalar Schur-class function and  $s(T)$  defined by the standard Riesz-Dunford functional calculus) and show how the theory for this class can be developed from a number of different points of view. (Received August 11, 2011)