

1067-47-908

Joseph A. Ball* (joball@math.vt.edu), Department of Mathematics, Virginia Tech,
Blacksburg, VA 24061-0123. *Multivariable Nevanlinna-Pick interpolation and connections with
control theory.*

The connection between the standard H-infinity problem in control theory and Nevanlinna-Pick interpolation in operator theory was established in the 1980s, and has led to a fruitful cross-pollination between the two fields since. In the meantime, there have been a number of developments in extensions of Nevanlinna-Pick interpolation and the related commutant lifting theory to several variables (both commuting and noncommuting), while research in H-infinity control theory has moved on to the study of robust control for systems with structured uncertainties and to the analysis of multidimensional systems. In this talk we review these developments and indicate the precise connections which survive in the more general multidimensional/multivariable incarnations of the two theories. (Received September 16, 2010)