1106-46-1619 **J. E. Pascoe*** (`jpascoe@math.ucsd.edu`), 9500 Gilman Drive # 0112, La Jolla, CA 92093-0112.
Using operator theory to measure the asymptotic behavior of Pick functions in two variables at infinity.

A Pick function is an analytic function from the poly upper half plane to the upper half plane. Pick functions share much of the rich theory of Schur functions, analytic functions from the polydisk into the disk, since the disk is conformally equivalent to the upper half plane. Furthermore, in two variables, operator theoretic techniques are available due to Ando's inequality. Agler, Tully-Doyle and Young developed a theory of representations of Pick functions in two variables in terms of operator theory which reflect the asymptotic behavior at infinity. In the special case where the function satisfies

$$\lim_{s \to \infty} |f(is, is)| < \infty$$

the representation takes the form

$$f(z_1, z_2) = \langle (A - z_1 Y - z_2(1 - Y))^{-1} \alpha, \alpha \rangle$$

where A is an unbounded self-adjoint operator, Y is a positive contraction and α is a vector, which can be viewed as an analogue of Nevanlinna's representation in one variable. Agler and McCarthy showed that higher degrees of regularity at infinity are reflected in a certain operator theoretic constuct, the Hankel vector moment sequence. We introduce Hankel vector moment sequences and show how they can be applied to develop a detailed theory of the asymptotic behavior of Pick functions at infinity. (Received September 14, 2014)