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Rigidity Theorems, Boundary Interpolation and Reproducing Kernels for Generalized Schur Functions

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Abstract. We consider the family of meromorphic functions of bounded type in the open unit disk, with non-tangential values on the unit circle of modulus bounded by 1, and with a finite number of poles in the open unit disk. Such functions are called generalized Schur functions. They were introduced by Krein and Langer in the 1970's. Using results on boundary interpolation at a given point for generalized Schur functions, we prove a general rigidity theorem for these functions. As a particular case of this result, we obtain a well known rigidity theorem of Burns and Krantz for functions which are analytic and contractive in the open unit disk.

Keywords. Boundary interpolation, generalized Schur functions, reproducing kernels, rigidity.

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