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**Rebecca L Sparks\*** (sparks@math.uri.edu). *Rational Interpolating Functions Whose Zeros and Poles are Constrained by Conditions Arising in Control.*

We shall discuss the problem of finding a rational function  $F$  of given degree whose zeros and poles lie outside the closed unit disk in the complex plane and that satisfies a given set of interpolation conditions. There will be a discussion about existence of solutions to this problem, numerical methods to compute such solutions, and properties of such solutions. This type of problem arises from the study of stability and bistability of control systems. (Received September 25, 2000)