SPR0 Substitutions and Families of Algebraic Riccati Equations

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Abstract: We study in this paper Algebraic Riccati Equations associated with single-input single-output linear time-invariant systems bounded in H_∞-norm. Our study is focused in the characterization of families of Algebraic Riccati Equations in terms of strictly positive real (of zero relative degree) substitutions applied to the associated H_∞-norm bounded system, each substitution characterizing then a particular member of the family. We also consider here Algebraic Riccati Equations associated with systems characterized by both an H_∞-norm constraint and an upper bound on their corresponding McMillan degree.