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Generalized Solutions of Riccati Equalities and Inequalities

Abstract

In this talk we present the Riccati inequality and equality for infinite dimensional linear discrete time stationary systems with respect to the scattering supply rate. The results are based on earlier work on the Kalman-Yakubovich-Popov inequality in [AKP1].

The main theorems are closely related to the results of Yu.M. Arlinskiĭ [ARL]. The main difference is that we do not assume the original system to be a passive scattering system, and we allow the solutions of the Riccati inequality and equality to satisfy weaker conditions.

This talk is based on recent joint work [AKP2] with Marinus Kaashoek and Damir Arov.

References

- [AKP1] D.Z. Arov, M.A. Kaashoek, D.R. Pik, The Kalman-Yakubovich-Popov Inequality and Infinite Dimensional Discrete Time Dissipative Systems, *J. Operator Theory*, 55 (2006), 393-438.
- [AKP2] D.Z. Arov, M.A. Kaashoek, D.R. Pik, Generalized Solutions of Riccati Equalities and Inequalities, *Methods Funct. Anal. Topology*, 22 (2016).
- [ARL] Y. Arlinskiĭ, The Kalman-Yakubovich-Popov inequality for passive discrete time-invariant systems, *OAM* 2 (2008), 15-51.

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