

5. Заключение

В работе получено решение задачи поиска динамического регулятора для стационарной системы с мультипликативными шумами. При выводе достаточных условий ограниченности анизотропийной нормы замкнутой системы была использована взаимно однозначная замена линеаризующая замена переменных, позволяющая свести поиск матриц регулятора в пространстве состояний к решению задачи выпуклой оптимизации.

Список литературы

1. Zames G. Feedback and optimal sensitivity: Model reference transformations, multiplicative seminorms, and approximate inverses // IEEE Transactions on Automatic Control. 1981. Vol. AC-26. P. 301-320.
2. Haddad W.M., Bernstein D.S., Mustafa D. Mixed-norm $\mathcal{H}_2/\mathcal{H}_\infty$ regulation and estimation: the discrete-time case // System Control Letters. 1991. Vol. 16, No. 4. P. 235-247.
3. Zhou K., Glover K., Bodenheimer B., Doyle J. Mixed \mathcal{H}_2 and \mathcal{H}_∞ performance objectives I: Robust performance analysis // IEEE Transactions on Automatic Control. 1994. Vol. AC-38. P. 1564-1574.
4. Khargonekar P.P., Rotea M.A., Baeyens E. Mixed $\mathcal{H}_2/\mathcal{H}_\infty$ filtering // International Journal of Robust and Nonlinear Control. 1006. Vol. 6. P. 313-330.
5. Scherer C.W. Mixed $\mathcal{H}_2/\mathcal{H}_\infty$ control // Springer. 1995. P. 173-216.
6. Semyonov A.V., Vladimirov I.G., Kurdyukov A.P. Stochastic Approach to \mathcal{H}_∞ -optimization // Proceedings of the 33th Conference on Decision and Control. 1994. P. 2249-2250.
7. Vladimirov I.G., Kurdyukov A.P., Semyonov A.V. Anisotropy of Signals and Entropy of Linear Stationary Systems // Doklady Mathematics. 1995. Vol. 51, No. 3. P. 388-390.
8. Vladimirov I.G., Diamond P., Kloeden P., Anisotropy-based Robust Performance Analysis of Finite Horizon Linear Discrete Time Varying Systems // Autom. Remote Control. 2006. Vol. 67, No. 7. P. 1265-1282.
9. Belov I.R., Yurchenkov A.V., Kustov A.Yu. Anisotropy-Based Bounded Real Lemma for Multiplicative Noise Systems: the Finite Horizon Case // Proceedings of the 27th Med. Conf. on Contr. and Aut., 2019. P. 148-152.
10. Yurchenkov A.V., Kustov A.Yu., Timin V.N. The sensor network estimation with dropouts: Anisotropy-based approach // Automatica. 2023. Vol. 151. P. 110924.
11. Yurchenkov A.V. Default Sensor Network Setup based on the Anisotropic Criterion // Herald of the Bauman Moscow State Technical University. Series Natural Sciences. 2023. Vol. 106, No. 1. P. 45-63.
12. Kustov A.Yu., Timin V.N., Yurchenkov A.V. Boundedness Condition for Anisotropic Norm of Linear Discrete Time-invariant Systems with Multiplicative Noise // Journal of Physics: Conference Series. Bristol, United Kingdom: Institute of Physics and IOP Publishing Limited. 2021. Vol. 1864. P. 012068.
13. Gahinet P. Explicit controller formulas for LMI-based \mathcal{H}_∞ synthesis // Automatica. 1996. Vol. 32. P. 1007-1014.
14. I.G. Vladimirov, A.P. Kurdjukov, A.V. Semyonov, On Computing the Anisotropic Norm of Linear Discrete-time-invariant Systems // IFAC Proceedings Volumes. 1996. Vol. 29, No. 1. P. 3057-3062.