

Linear control systems partially ordered by the sharp partial order

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Abstract

Matrix partial orders are a useful tool in several research areas. In [1] the authors show that, for two matrices A and B of the same size, $A \leq B$ implies that B can be seen as a perturbation of A for the most common matrix partial orders. We apply this theory in control linear systems [2]. Specifically, we compare two control linear systems whose state matrices are related under the sharp partial order. It should be interesting to have a relationship between the solutions of both systems. In this work we present this relation by finding that the difference between both solutions is given by the perturbation between the involved state matrices. Moreover, an upper bound for this difference is found.

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References

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- [2] T. Kaczorek *Linear Control Systems, Vol 1 and Vol 2*. John Wiley and Sons Inc., New York, 1992.