

## POSITIVITY AND STABILIZATION OF 2D LINEAR SYSTEMS

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### Abstract

The problem of finding a gain matrix of the state-feedback of 2D linear system such that the closed-loop system is positive and asymptotically stable is formulated and solved. Necessary and sufficient conditions for the solvability of the problem are established. It is shown that the problem can be reduced to suitable linear programming problem. The proposed approach can be extended to 2D linear system described by the 2D Roesser model.

**Keywords:** linear 2D systems, general model, positivity, stabilization, state-feedback.

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