

Robust Pole Placement for Second-order Systems

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Abstract: Based on recently developed sufficient conditions for stability of polynomial matrices, an LMI technique is described to perform robust pole placement by proportional-derivative feedback on second-order linear systems affected by polytopic or norm-bounded uncertainty. As illustrated by several numerical examples, at the core of the approach is the choice of a nominal, or central quadratic polynomial matrix.

Keywords: polynomial matrix; second-order linear systems; LMI; pole placement; robust control;

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