

# On the common quadratic Lyapunov functions for $\mathcal{D}$ -stable matrices

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## Abstract

It is well known that the existence of a common quadratic Lyapunov function (CQLF) for a family of matrices plays an important role in the stability theory [2], [3]. This talk deals with analyzing of stability of matrices in a complex region  $\mathcal{D}$  which is described by rational functions [1]. Here we are given a condition that guarantees the existence of a common quadratic Lyapunov function for a polynomial matrix family. A sufficient condition for a common solution of two 3-dimensional  $Z$ -matrices is given as well.

## Keywords

Stability regions, Common quadratic Lyapunov functions.

## References

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