UNIQUENESS OF SOLUTION OF GENERALIZED SYLVESTER-LIKE EQUATIONS WITH RECTANGULAR COEFFICIENTS

F. De Terán, B. Iannazzo, F. Poloni, and L. Robol
Department of Mathematics, Universidad Carlos III de Madrid
Avda. Universidad 30, 28911, Leganés, Spain
`fteran@math.uc3m.es`

We provide necessary and sufficient conditions for the generalized $\star$-Sylvester matrix equation, $AXB + CX^\star D = E$, to have exactly one solution for any right-hand side E. These conditions are given for arbitrary coefficient matrices A, B, C, D (either square or rectangular) and generalize existing results for the same equation with square coefficients [1]. We also review the known results regarding the existence and uniqueness of solution for generalized Sylvester and $\star$-Sylvester equations. The contents of this talk have been recently published in [2].

References

[1] F. De Terán, B. Iannazzo, *Uniqueness of solution of a generalized $\star$-Sylvester matrix equation*, Linear Algebra Appl., 493 (2016), pp. 323–335.

[2] F. De Terán, B. Iannazzo, F. Poloni, and L. Robol , *Uniqueness of solution of generalized Sylvester-like equations with rectangular coefficients*, Linear Algebra Appl., 542 (2018), pp. 501–521.