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ON SOLUTIONS OF MATRIX EQUATION $AXA^T+BYB^T=C$

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摘要
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ON SOLUTIONS OF MATRIX EQUATION $AXA^T+BYB^T=C$

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Abstract By making use of the quotient singular value decomposition (QSVD) of a matrix pair, this paper establishes the necessary and sufficient conditions for the existence of and the expressions for the general solutions of the linear matrix equation $AXA^T+BYB^T=C$ with the unknown X and Y, which may be both symmetric, skew-symmetric, nonnegative definite , positive definite or some cross combinations respectively. Also, the solutions of some optimal problems are derived.

Key words Matrix equation Matrix norm QSVD Constrained condition Optimal problem

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