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THE SYMMETRIC LINEAR MATRIX EQUATION*

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Abstract. In this paper sufficient conditions are derived for the existence of unique and positive definite solutions of the matrix equations $X - A_1^* X A_1 - \ldots - A_m^* X A_m = Q$ and $X + A_1^* X A_1 + \ldots + A_m^* X A_m = Q$. In the case there is a unique solution which is positive definite an explicit expression for this solution is given.

Key words. Linear matrix equation, Positive definite solutions, Uniqueness of solutions.

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