THE POSITIVE DEFINITE SOLUTION TO A NONLINEAR MATRIX EQUATION

JIE MENG* AND HYUN MIN KIM

In this talk, we consider the nonlinear matrix equation $F(X) = X^p + A^T X A - Q = 0$, where $p$ is a positive integer, $A$ is a nonsingular real matrix and $Q$ is positive definite. We show that the equation has a unique symmetric positive definite solution by using fixed-point theory. Some iterative method for obtaining the positive definite solution is presented. Finally, we give some numerical experiments by applying this method.

REFERENCES


JIE MENG: DEPARTMENT OF MATHEMATICS, PUSAN NATIONAL UNIVERSITY, BUSAN, 609-735, KOREA
E-mail address: mengjiehws163.com

HYUN MIN KIM: DEPARTMENT OF MATHEMATICS, PUSAN NATIONAL UNIVERSITY, BUSAN, 609-735, KOREA
E-mail address: hyunnminkim@pusan.ac.kr

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*Presenting author.