

1067-47-316

**Selcuk Koyuncu\*** ([sk476@drexel.edu](mailto:sk476@drexel.edu)), Drexel University, 3141 Chestnut st Korman Center, Department of Mathematics, Philadelphia, PA 19104, and **Hugo Woerdeman** ([hugo@math.drexel.edu](mailto:hugo@math.drexel.edu)), Drexel University, 3141 Chestnut st Korman Center, Department of Mathematics, Philadelphia, PA 19104. *The Inverse of a Two-level Positive Definite Toeplitz Operator.*

The Gohberg-Semencul formula allows one to express the entries of nonsingular Toeplitz matrices using only a few entries (the first row and the first column) of the matrix, under some nonsingularity condition. In this paper we will provide a two variable generalization of the Gohberg-Semencul formula in the case of a positive definite two-level Toeplitz matrix with a symbol of the form  $\frac{1}{|p|^2}$  where  $p$  is a stable polynomial of two variables. We also consider the case of operator valued two-level Toeplitz matrix. Numerical results are included. (Received August 19, 2010)