

## GENERALIZED PASCAL $K$ -ELIMINATED FUNCTIONAL MATRIX WITH $2N$ VARIABLES\*

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**Abstract.** In this paper, we introduce the Pascal  $k$ -eliminated functional matrix and the Pascal symmetric functional matrix with  $2n$  variables. Some algebraic properties of these matrices are presented and proved. In addition, we demonstrate a direct application of these properties for LU decompositions of some well-known matrices (such as symmetric Pascal matrices).

**Key words.** Pascal matrix, Pascal  $k$ -eliminated functional matrix, Pascal symmetric functional matrix, LU decompositions, Cholesky factorization.

**AMS subject classifications.** 15A06, 34A30.

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