

1146-15-271

**Minerva Catral\***, Department of Mathematics, Xavier University, Cincinnati, OH 45207, and  
**Leila Lebtahi, Jeffrey Stuart** and **Néstor Thome**. *Matrices  $A$  such that  $A^{s+1}R = RA^*$  with  $R^k = I$ .*

The matrices  $A \in \mathbb{C}^{n \times n}$  such that  $A^{s+1}R = RA^*$  where  $R^k = I_n$ , and  $s, k$  are nonnegative integers with  $k \geq 2$  are introduced; such matrices are called  $\{R, s + 1, k, *\}$ -potent matrices. The  $s = 0$  case corresponds to matrices such that  $A = RA^*R^{-1}$  with  $R^k = I_n$ , and is studied using spectral properties of the matrix  $R$ . Examples illustrating zero pattern constraints are presented. For  $s \geq 1$ , various characterizations of the class of  $\{R, s + 1, k, *\}$ -potent matrices and relationships between these matrices and other classes of matrices are presented. (Received January 24, 2019)