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)