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Roza Aceska*, 2000 W University Ave, Muncie, IN 47305, and **Yeon Hyang Kim**. *Scalable frames generated by actions of iterative operators.*

In a finite dimensional Hilbert space H , with a fixed finite set of vectors $G \subset H$, we study the iterative actions of an operator A on H . Under certain conditions on A and G , the set of iterations $F_G(A) = \{A^j g \mid g \in G, 0 \leq j \leq L(g)\}$ is a frame for H . Frames of type $F_G(A)$ have special properties; for instance, the canonical dual frame of $F_G(A)$ has an iterative set structure as well.

We state the relations between A , G and the number of iterations L , which ensure that the system $F_G(A)$ is a tight or a scalable frame. We study more closely the special case when A is Hermitian, that is, we exploit its unitary diagonalization. In addition, we answer the question of frame scalability and full spark frames for several special cases. (Received August 24, 2016)