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Akram Aldroubi* (akram.aldroubi@vanderbilt.edu), **Longxiu Hunag** and **Armenak Petrosyan**. *Frames induced by powers of operators*.

Let A be an operator in a Hilbert space \mathcal{H} , and let $\mathcal{G} \subset \mathcal{H}$ be a countable set of vectors. We investigate the relations between A , \mathcal{G} and $I \subset \mathbb{R}$ that make the system of iterations $\{A^t g : g \in \mathcal{G}, t \in I\}$ complete, Bessel, a basis, or a frame for \mathcal{H} . Several cases of this problem have already been considered. We will give a brief review of previous results and present several new ones. The problem is motivated by the dynamical sampling problem and is connected to several topics in functional analysis, including, frame theory and spectral theory. It also has relations to topics in applied harmonic analysis including, wavelet theory and time-frequency analysis. (Received July 18, 2017)