HILBERT–SCHAUDER FRAME OPERATORS

RUI LIU

Abstract. We introduce a new concept of frame operators for Banach spaces we call a Hilbert-Schauder frame operator. This is a hybrid between standard frame theory for Hilbert spaces and Schauder frame theory for Banach spaces. Most of our results involve basic structure properties of the Hilbert-Schauder frame operator. Examples of Hilbert-Schauder frames include standard Hilbert frames and classical bases of $\ell_p$ and $L^p$-spaces with $1 < p \leq 2$. Finally, we give a new isomorphic characterization of Hilbert spaces.


Keywords and phrases: Hilbert spaces, Banach spaces, Hilbert-Schauder frames, Hilbert-Schauder frame operators.

REFERENCES