

A NOTE ON Λ -BANACH FRAMES AND O-FRAMES

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Abstract. In this paper, we define and study near-exact Λ -Banach frame for operator spaces with some illustrative examples. A sufficient condition for a Λ -Banach frame to be near-exact has been given. In the sequel, we deal with a Krien-Milman-Rutman type stability result for Λ -Banach frame. Moreover, we demonstrate a method to construct Λ -Banach frames associated with O-frames. Also, some results regarding characterizations of O-frames have been given.

1. Introduction

Frames for Hilbert spaces were introduced by Duffin and Schaeffer [5] In 1952. Recall that, a sequence $\{x_n\}_{n=1}^{\infty}$ of elements in a Hilbert space H is said to be a frame for H if there exist constants with $0 < A_1 \leq A_2 < \infty$ such that

$$A_1 \|x\|^2 \leq \sum_{n=1}^{\infty} |\langle x, x_n \rangle|^2 \leq A_2 \|x\|^2, \quad x \in H. \quad (1.1)$$

Nowadays, frames play an important role in many applications in mathematics and engineering. In particular, frames are widely used in wavelet theory, signal processing, wireless sensor network, image processing and many more. In view of theoretical developments, many concepts and notions from Banach spaces and operator theory are used to study frames.

In 1991, Hilbert frame was extended to Banach spaces by Grochenig [7] who introduced the notion of Banach frame in Banach spaces. Since then a number of generalizations and variations of frames in Banach spaces have been introduced and studied by various authors, namely, retro Banach frames [8], fusion Banach frames [10], operator frames [13], operator Banach frames [16] etc. Besides, reconstruction property in the context of frames in Banach spaces was studied in [1] and [11]. In 2015, O. Reinov

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