Fuzzy frame in Fuzzy real inner product space

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Abstract

In this paper we describe the true concept of fuzzy inner product spaces. Then, to clarify the meaning of these spaces look at an example . Below we explain the new concept of alpha frames . A couple of examples of the different spaces with inner frames in classic look .

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1 Introduction

It was Katsaras[7], who while studying fuzzy topological vector spaces, was the rst to introduced in 1984, the idea of fuzzy norm on a linear space. Later on many other mathematicians like Felbin[5], Cheng & Mordeson[4], Bag & Samanta[3] etc. introduced denition of fuzzy normed linear spaces in dierent approach. studies on fuzzy inner product spaces are relatively recent and few work have been done in fuzzy inner product spaces. Dafyn the first time in 1952 and Scheffer in order to complete his paper on non- harmonic Fourier series theory made frames and frames them as soon as mentioned in that article .But so far nothing has been done about fuzzy frame in fuzzy inner product spaces . In this paper, the definition of a real inner product space that is expressed by A.Hasankhani, A.Nazari, M.Saheli, in[6] .After that, A couple of examples the concept of fuzzy frames in real inner fuzzy spaces between them with frames in real inner product are expressed.

2 Preliminaries

In this section some denitions and preliminary results are given which are used in this paper

Definition 2.1 (6)**.** Let X a linear space over R (the set of real numbers). Then a fuzzy subset $\mu : X \times X \times R \to [0, 1]$ is called fuzzy real inner product on X if $\forall x, y, z \in X$ and $t \in R$ the following conditions hold.
(FI-1) $\mu(x, x, t) = 0 \ \forall t < 0$
(FI-2) $\mu(x, x, t) = 1 \ \forall t > 0$ iff $x = \underline{0}$
(FI-3) $\mu(x, y, t)=\mu(y, x, t)$
(FI-4)

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