

FRAME WAVELET SETS IN \mathbb{R}^d

X. Dai, Y. Diao, Q. Gu, and D. Han

Preprint no. 2002-10

Abstract

In this paper, we discuss the characterization of frame wavelet sets. We extend some results obtained earlier in the one dimensional case. More specifically, we completely characterize tight frame wavelet sets in higher dimensions and obtain some necessary conditions and sufficient conditions for a set E to be a frame wavelet set in \mathbb{R}^d . Several examples are presented and compared with those in the one dimensional case. Using our results, one can easily construct various frame wavelet sets.

Key words and phrases: Frame, Wavelet, Frame Wavelet, Frame Wavelet Set, Fourier Transform.