Acta Mathematica Sinica, English Series 2007 23 (2): 349-356 ISSN: 0583-1431 CN: 11-1914/R

23(2)

Frame wavelets with compact support for $L^2(R^n)$

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收稿日期 2005-8-18 修回日期 2006-2-7 网络版发布日期 2007-1-16 接受日期 2006-2-5

摘要

关键词 Fourier transform frame wavelet expansive matrix

分类号 39A10

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Abstract The construction of frame wavelets with compact supports is a meaningful problem in wavelet analysis. In particular, it is a hard work to construct the frame wavelets with explicit analytic forms. For a given $n\times n$ real expansive matrix A, the frame-sets with respect to A are a family of sets in $\mathbf{R}^n$. Based on the frame-sets, a class of high-dimensional frame wavelets with analytic forms are constructed, which can be non-bandlimited, or even compactly supported. As an application, the construction is illustrated by several examples, in which some new frame wavelets with compact supports are constructed. Moreover, since the main result of this paper is about general dilation matrices, in the examples we present a family of frame wavelets associated with some non-integer dilation matrices that is meaningful in computational geometry.

Key words Fourier transform frame wavelet expansive matrix

DOI: 10.1007/s10114-005-0899-4

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