Biorthogonal Box Spline Wavelet Bases

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Abstract

Some specific box splines are refinable functions with respect to $n \times n$ expanding integer scaling matrices M satisfying $M^n = 2I$. Therefore, they can be used to define a multiresolution analysis and a wavelet basis associated with these scaling matrices. In this paper, we construct a biorthogonal wavelet basis for this special subclass of box splines. These specific bases can also be used to derive wavelets with respect to classical dyadic scaling matrices.

Key Words: Biorthogonal wavelets, multiresolution analysis, box splines.

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