A New Approach to Interpolating Scaling Functions

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Abstract

We present a new method to construct interpolating refinable functions in higher dimensions. The approach is based on the solutions to specific Lagrange interpolation problems by polynomials and applies to a large class of scaling matrices. The resulting scaling functions automatically satisfy certain Strang–Fix conditions. Several examples are discussed.

Key Words: Interpolating scaling functions, Strang–Fix conditions, polynomial interpolation, expanding scaling matrices.

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