

Unitary extension principle and applications

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The unitary extension principle provides a great flexibility in designing tight wavelet frames and their associated filters. In this talk, I will review some theoretic developments in the field of wavelet theory, after the unitary extension principle was published in 1997. A few tight wavelet frame based algorithms for image inpainting, deconvolution and supper resolution image reconstructions are also given to illustrate wide applications of the unitary extension principle in the area of mathematical imaging.