TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Room 617 Wachman Hall

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Sparsity enforcing edge detection method for blurred and noisy Fourier data

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Abstract.

I will discuss a method for estimating the edges in a piecewise smooth function from blurred and noisy Fourier data. The proposed method is constructed by combining the Concentration Factor (CF) edge detection method, which uses a finite number of Fourier coefficients to approximate the jump function of a piecewise smooth function, with compressed sensing ideas. While the CF method can cause misidentification of edges when simple thresholding techniques are used, due to the Gibbs phenomenon, adopting an idea from compressed sensing and using a regularized deconvolution removes the artifacts.

(joint work with W. Stefan, A. Viswanathan, and A. Gelb)