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Fourier Series on Fractals and the Kaczmarz Algorithm

Abstract

The Kaczmarz algorithm is a well-known technique for solving systems of linear equations. We show that the algorithm can be used to construct Fourier series expansions for functions which are square-integrable with respect to a fractal measure (or any singular measure) on the unit interval. The algorithm also gives rise to reproducing kernel subspaces of the Hardy space of the disc with specified boundary representations, which in turn is related to the spectral theory of the backward shift on the Hardy space. This is joint work with John Herr and Palle Jorgensen.

Talk time: 2016-07-19 6:00PM— 2016-07-19 6:20PM

Talk location: Crow 204

Special Session: Applied harmonic analysis, frame theory, and operator theory. Organized by G. Kutyniok.