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Barbara Zwicknagl* (bzwick@andrew.cmu.edu). *Series kernels and some applications to reconstruction problems.*

In this talk we discuss approximation properties of series kernels. The latter are positive definite kernel functions that possess expansions in terms of simple basis functions. Typical examples of such basis functions include spherical harmonics, monomials, or wavelet-type function systems. The approximation properties of trial spaces built by translates of such series kernels are discussed. We focus on the interplay between the multiscale structure of the kernel and the choice of data points, and present applications ranging from multivariate polynomial approximation to the effective numerical solution of variational problems on manifolds.

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