

## Reproducing kernel-based methods in generalized Besov spaces

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Kernel-based methods are a well-established tool for high-dimensional reconstruction problems. However, a problem-adapted kernel is often not given in a closed form but in a multiscale decomposition which is usually an infinite series. Thus, for numerical applications, a careful truncation of the infinite expansion is required.

In this talk, I will discuss the interplay between kernel-based approximation and multiscale decompositions, focusing on applications in certain generalized Besov spaces. I will discuss approximation and stability properties of the resulting regularized reconstruction methods. The analysis relies in particular on localization properties of specific integral kernels, as obtained by Coulhon et al. (2012).

This talk is based on joint work with M. Griebel and C. Rieger.