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Nonlinear expansions in reproducing kernel Hilbert spaces

I will introduce an expansion scheme in reproducing kernel Hilbert spaces, which as a special case covers the celebrated Blaschke unwinding series expansion for analytic functions, also known as adaptive Fourier decomposition. The expansion scheme can also be generalized to cover certain reproducing kernel Banach spaces. I will discuss convergence results for this series expansion, which has been a major question with the Blaschke unwinding, as well as a few concrete applications and examples.

This is based on joint work with Javad Mashreghi.