Nonlinear wavelet and spline approximation in BMO

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We present results on two types of nonlinear n-term approximation processes: with wavelets in BMO($\mathbb{R}^d$) and with splines in BMO($\mathbb{R}$). Despite the different nature of the wavelets and the splines we are able to show that the similarity of their approximation properties in L^p can be extended to BMO.

Certain Besov-type spaces are naturally involved in these approximation processes. Sharp Jackson and Bernstein estimates are established that allow for a complete characterization of the rates of approximation (approximation spaces).