

## Haar decompositions and Besov-type spaces

*Winfried Sickel*

Friedrich-Schiller-University Jena

`winfried.sickel@uni-jena.de`

Coauthor(s): Dachun Yang, Wen Yuan

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Nowadays Besov spaces  $B_{p,q}^s(\mathbb{R})$  are considered as a quite reasonable possibility to describe the regularity of a function. They are used in almost all parts of Approximation Theory and beyond. Since a few years there exists a generalization of Besov spaces, so-called Besov-type spaces  $B_{p,q}^{s,\tau}(\mathbb{R})$ . For small smoothness  $s$  and  $\tau \in (0, 1/p)$  they can be described as the collection of all tempered distributions  $f$  such that

$$\|f|B_{p,q}^{s,\tau}(\mathbb{R})\| := \sup_I |I|^{-\tau} \|f|B_{p,q}^s(I)\|,$$

where the supremum is taken with respect to all finite intervals  $I \subset \mathbb{R}$ . In my talk I will mainly discuss the discretization of these spaces by Haar wavelets.