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On the estimation of wavelet coefficients. (English) Zbl 0955.42023
Adv. Comput. Math. 13, No. 2, 105-129 (2000).

In this paper the author studies the magnitude of wavelet coefficients by investigating the quantities

$$c_k(\psi) = \sup_{f \in A_k} \frac{|(\psi, f)|}{\|\psi\|_2}.$$

Here, the function classes A_k are defined by

$$A_k = \{f \mid \|f^{(k)}\|_2 < 1\} \quad k \in \mathbb{N}.$$

In particular, the expressions $\lim_{m \rightarrow \infty} c_k(\psi_m)$, for a fixed k , and $\lim_{m \rightarrow \infty} c_m(\psi_m)$ are explicitly computed for Daubechies orthonormal wavelets and for semiorthogonal spline wavelets, where m denotes the number of vanishing moments of ψ_m .

It turns out that these constants are considerably smaller for spline wavelets.

Reviewer: [Gerlind Plonka \(Duisburg\)](#)

MSC:

[42C40](#) Nontrigonometric harmonic analysis involving wavelets and other special systems
[41A15](#) Spline approximation

Cited in **2** Documents

Keywords:

[wavelet coefficients](#); [bounds](#); [Daubechies wavelets](#); [semiorthogonal spline wavelets](#)

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