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Fractional-wavelet analysis of positive definite distributions and wavelets on $\mathcal{D}'(\mathbb{C})$. (English)

Zbl 1365.65294

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The Ortigueira-Caputo fractional operator, which provides the fractional derivative of a complex function, is rewritten in the distribution sense. The fractional derivative of the Gabor-Morlet wavelet is computed. An open problem, concerning the possibility to generalize the reconstruction formula for Shannon wavelets through the distribution theory, is proposed.

For the entire collection see [Zbl 1365.74007].

Reviewer: Yuri A. Farkov (Moscow)

MSC:

65T60 Numerical methods for wavelets

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Keywords:

wavelet basis; positive definite distribution; complex fractional derivative; Gabor-Morlet wavelet

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