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International scientific online seminar on Analysis, Differential Equations and Mathematical Physics

Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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Wavelet Approximation in Orlicz Spaces

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Multivariate wavelet decompositions with matrix dilations are considered. Dual wavelet frames and so-called frame-like wavelet systems (that are not frames, but preserve some important properties of frames) are discussed. Approximation properties of such systems in the Orlicz spaces are investigated. The order of approximation (in the sense of modular convergence) of wavelet frame decompositions satisfying a number of natural conditions is found for an arbitrary Orlicz space. For the Orlicz spaces satisfying Δ_2 -condition, an error estimate providing approximation order of such wavelet expansions is given in terms of the Luxemburg norm. Similar results are obtained for appropriate frame-like systems under the assumption that an Orlicz space satisfies the Δ' -condition.

*Seminar website: <https://msrn.sfedu.ru/sl>. The seminar uses Microsoft Teams online platform. Please send questions to tatandreeva@sfedu.ru (Tatiana Andreeva, scientific secretary).

The seminar is organized by the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the special Interest ISAAC-OTHA group in Operator Theory and Harmonic Analysis.

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