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Abstracts

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Compactly Supported Wavelets

Time-frequency uncertainty is a significant parameter characterizing time and frequency concentration of wavelets. Chui and Wang have shown that time-frequency uncertainty of classical Daubechies wavelets increases without bound as the wavelets are made arbitrary smooth [1]. In [2] a modification of Daubechies construction was considered which leads to compactly supported wavelets with uniformly bounded time-frequency uncertainty constants with respect to regularity parameter. The aim of the talk is to present in details one special kind of such modification (the simplest one). Using spectral factorization, modified wavelets with minimum time-frequency uncertainty are defined. They are compared with classical Daubechies wavelets of the same order.

References

[1] C. Chui and J. Wang. *High-order orthonormal scaling functions and wavelets give poor time-frequency localization.* Techn. report # 322, Center for approximation theory, Department of mathematics, Texas A& M University, 1994.

[2] I. Ya. Novikov. Modified Daubechies wavelets preserving localization with growth of smoothness. *East J. Approximation*, **1**: 341–348, 1995.