

An Application of the Shifted Harr Wavelet Transform to Noise Suppression of NMR Spectrum

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The noise suppression of time domain NMR data by discrete wavelet transform with high order Daubechies wavelet coefficients exhibits severe peak distortion and incomplete noise suppression near the real signal. However, the fact that even a shift averaged Harr wavelet transform with a set of Daubechies wavelet coefficients (1/2, -1/2) can be used as a new and excellent tool to distinguish real peaks from the noise contaminated NMR signal is introduced. New algorithms of shift averaged Harr wavelet were developed and quantitatively evaluated in terms of threshold and signal to noise ratio (SNR).