

# Multidimensional hypercomplex DFT algorithm implemented in Hamilton-Eisenstein codes

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## ***Abstract***

The paper synthesizes a “combined” algorithm for a multidimensional hypercomplex discrete Fourier transform of a real signal at base three with data representation in generalized Hamilton-Eisenstein codes. The complexity of arithmetic operations in commutative-associative hypercomplex algebra and its representation in generalized codes is determined. The computational complexity of the synthesized algorithm is evaluated.

***Keywords:*** DFT algorithm, multidimensional hypercomplex, Hamilton-Eisenstein codes, Fourier transform.

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