

# Rounded Trigonometrical Transforms

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## Abstract

Discrete trigonometrical transforms are of great importance in digital signal processing. In this work, two new methods for spectral estimation are proposed. Using rounding-off operations, the rounded Fourier transform (RFT) and the rounded Hartley transform (RHT) are introduced. It is shown that these transforms have null multiplicative complexity, and their calculation involves only additions and shift register operations. The concept of approximate inversion is also explored to define multiplication-free inverse transformations. Related fast algorithms are examined.

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