

SIMION STOILow INSTITUTE OF MATHEMATICS OF THE ROMANIAN ACADEMY

Monthly conference:

Fourier transform as a triangular matrix

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IMAR, *Miron Nicolescu* amphitheater

Abstract: Let V be a finite dimensional vector space over the field with two elements with a given nondegenerate symplectic form. Let $[V]$ be the vector space of complex valued functions on V and let $[V]_Z$ be the subgroup of $[V]$ consisting of integer valued functions. We show that there exists a Z -basis of $[V]_Z$ consisting of characteristic functions of certain explicit isotropic subspaces of V such that the matrix of the Fourier transform from $[V]$ to $[V]$ with respect to this basis is triangular. This continues the tradition started by Hermite who described eigenvectors for the Fourier transform over real numbers.