

Shift Invariant Spaces related to the Special Affine Fourier Transform

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Abstract:

We introduce a generalized translation T_x^A associated with the special affine Fourier transform (SAFT) \mathcal{F}_A and establish a generalized convolution theorem. This is being used to obtain a generalization of Wendel's theorem for SAFT multipliers. The shift invariant space $V_A(\phi)$ associated with the SAFT is introduced and characterization theorems for the system of translates T_x^A to be an orthonormal system and a Riesz sequence are obtained. In the final part of the paper sampling in the shift invariant spaces V_A is discussed along with illustrations.

The talk is based on joint work with Radha Ramakrishnan and Hasan Ali Biswas, Indian Institute of Technology, Chennai, India.