

The localization of a frame for weighted shift-invariant spaces

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We investigate the concept of the localization of frames and the properties of the dual frame in the weighted shift-invariant spaces

$$V_{\mu}^p(\Phi) = \left\{ \sum_{i=1}^r \sum_{j \in \mathbb{Z}} c_i(j) \phi_i(\cdot - j) \mid \{c_i(j)\}_{j \in \mathbb{Z}} \in \ell_{\mu}^p, i = 1, \dots, r \right\}, p \in [1, \infty],$$

with specially chosen functions ϕ_i , $i = 1, \dots, r$. We determine whether the frame operator preserves this localization and the dual frame possesses the same localization properties as the original frame.