

Ashot Avanesov

Title: Geometrical and group properties of discrete analogs of the center-of-mass and the cluster tomograms

Abstract:

We adopt methods of symplectic tomography and discrete phase space for the description of states of discrete variable quantum systems (qudits). The proposed tomographic functions are constructed as generalized analogs of the center-of-mass and the cluster tomograms and associated with finite linear manifolds in the discrete phase space. Hilbert spaces of considered qudits must have the power of a prime dimension, so the corresponding phase spaces are the vector spaces over finite fields. We find conditions for the nonnegativity of the constructed functions and obtain formulas for the density matrix restoration in the dequantizers/quantizers formalism