

A generalized Hodge type analysis of Delsarte-Lions permutation operators in multidimension

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A review on spectral and differential-geometric properties of Delsarte transmutation operators in multi-dimension is addressed. Their differential, geometrical and topological structure in multi-dimension is analyzed, the relationships with generalized De Rham-Hodge theory of differential complexes are stated. Some applications to integrable dynamical systems theory in multi-dimension will be presented.