OPTIMAL DUAL FUSION FRAMES FOR PROBABILISTIC ERASURES

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Abstract. For any fixed fusion frame, its optimal dual fusion frames for reconstruction is studied in case of erasures of subspaces. It is considered that a probability distribution of erasure of subspaces is given and that a blind reconstruction procedure is used, where the erased data are set to zero. It is proved that there are always optimal duals. Sufficient conditions for the canonical dual fusion frame being either the unique optimal dual, a non-unique optimal dual, or a non optimal dual, are obtained. The reconstruction error is analyzed, using the optimal duals in the probability model considered here and using the optimal duals in a non-probability model.

Key words. Frames, Fusion frames, Dual fusion frames, Probabilistic erasures, Optimal dual fusion frames.

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