Oblique Duality for Fusion Frames

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We introduce and develop the concept of oblique duality for fusion frames. This concept provides a mathematical framework to deal with problems in distributed signal processing where the signals considered as elements in a Hilbert space are, under certain requirements, analyzed in one subspace and reconstructed in another subspace. The requirements are, on one side, the uniqueness of the reconstructed signal, and on the other what we call consistency of the sampling for fusion frames. Both conditions are naturally related to oblique projections. We study the main properties of oblique dual fusion frames and oblique dual fusion frame systems introduced in this work and present several results that provide alternative methods for their construction.

Joint work with Patricia Morillas (IMASL, UNSL-CONICET).