

Geometry of optimal decomposition for the L- functional and duality in convex analysis

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The role of the Tikhonov functional and its minimizers in inverse problems is well known. The Tikhonov functional and its analogs (for example its analog which appears in the Rudin-Osher-Fatemi (ROF) image denoising model) are particular cases of the L-functional of the interpolation theory. In this talk we plan to present a geometrical characterization of exact minimizers (optimal decomposition) of the L- functional.

In 2001 Yves Meyer obtained a characterization of optimal decomposition for the ROF functional by using duality. Our result is an attempt to extend Yves Meyer's characterization on general Banach couples by using duality approach from convex analysis.