

Multi-parameter regularization and its numerical realization

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In this talk we propose and analyse a choice of parameters in the multi-penalty regularization. A modified discrepancy principle is presented within the multi-parameter regularization framework. An order optimal error bound is obtained under standard smoothness assumptions. We also propose a numerical realization of the multi-parameter discrepancy principle based on the model function approximation. Numerical experiments on a series of test problems support theoretical results. Finally we show how proposed approach can be successfully implemented in Laplacian Regularized Least Squares for learning from labeled and unlabeled examples.

The talk is based on joint work with Shuai Lu.