

NEW PARAMETER CHOICE RULES FOR REGULARIZATION WITH MIXED GAUSSIAN AND POISSON NOISE

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Resumo/Abstract:

This work studies parameter choice methods for the regularization of linear inverse problems where the data are affected by both Poissonian and Gaussian noise. We present a new methodology which provides an exact estimator for the expected squared residual as a function of the regularization parameter when the regularization method is linear. It results that the minimizer of the estimator is a good regularization parameter in most cases. For divergence measures other than the squared 2-norm, or for non-linear regularization methods, the estimator is approximate, but still useful. Numerical experiments are shown in order to illustrate the theory.