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Yonggi Park* (pygabc@gmail.com), 712 Vine street, Kent, OH 44240, and **Lothar Reichel, G Rodriguez** and **X Yu**. *Parameter Determination for Tikhonov Regularization Problems in General Form*. Preliminary report.

A regularization parameter $\lambda > 0$ balances the influence of a fidelity term, which measures how well the data is approximated, and of a regularization term, which dampens the propagation of the data error into the computed approximate solution. The value of the regularization parameter is important for the quality of the computed solution: A too large value of $\lambda > 0$ gives an over-smoothed solution that lacks details that the desired solution may have, while a too small value yields a computed solution that is unnecessarily, and possibly severely, contaminated by propagated error. When a fairly accurate estimate of the norm of the error in the data is known, a suitable value of λ often can be determined with the aid of the discrepancy principle. This paper is concerned with the situation when the discrepancy principle cannot be applied. It then can be quite difficult to determine a suitable value of λ . We consider the situation when the Tikhonov regularization problem is in general form, i.e., when the regularization term is determined by a regularization matrix different from the identity, and describe an extension of the COSE method for determining the regularization parameter λ in this situation. (Received September 16, 2017)