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A PARAMETER CHOICE METHOD FOR TIKHONOV REGULARIZATION*

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Abstract. A new parameter choice method for Tikhonov regularization of discrete ill-posed problems is presented. Some of the regularized solutions of a discrete ill-posed problem are less sensitive than others to the perturbations in the right-hand side vector. This method chooses one of the insensitive regularized solutions using a certain criterion. Numerical experiments show that the new method is competitive with the popular L-curve method. An analysis of the new method is given for a model problem, which explains how this method works.

Key words. discrete ill-posed problems, discrete Picard condition, Tikhonov regularization.

AMS subject classifications. 65F22.

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