

Abstract

We present a new method for regularization of ill-conditioned problems, such as those that arise in image restoration or mathematical processing of medical data. The method extends the traditional *trust-region subproblem*, TRS, approach that makes use of the *L-curve* maximum curvature criterion, a strategy recently proposed to find a good regularization parameter. We use derivative information, and properties of an algorithm for solving the TRS, to efficiently move along points on the L-curve and reach the point of maximum curvature. We do not find a complete characterization of the L-curve. A MATLAB code for the algorithm is tested and a comparison to the conjugate gradient least squares, CGLS, approach is given and analyzed.