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Ian W. Knowles*, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294, and **Mary A. LaRussa**, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL 35294. *Conditionally well-posed elliptic inverse problems.*

The problem of recovering coefficient functions in an elliptic equation when the solution is known is important in (for example) groundwater modelling where the solution is related to the (easily measured) water levels in aquifer observation wells. Such inverse problems are generally regarded as being ill-posed in the sense that the coefficient functions depend discontinuously on the measured data. We show that provided one is careful about the choice of recovery algorithm, and that certain additional constraints are imposed, the recovery is actually well-posed. Some computational examples will also be discussed. (Received August 31, 2008)