# CORR 2000-40

## The Radius of metric Regularity

### A.L. Dontchev*, A.S. Lewis, R.T. Rockafellar*

**Abstract**   Metric regularity is a central concept in variational analysis for the study of solution mappings associated with "generalized equations," including variational inequalities and parameterized constraint systems. Here it is employed to characterized the distance to irregularity or infeasibility with respect to perturbations of the system structure. Generalizations of the Eckart-Young theorem in numerical analysis are obtained in particular.

**Keywords**   metric regularity, perturbations, distance to irregularity, distance to infeasibility, Eckart-Young theorem, Lusternik-Graves theorem, Robinson-Ursecu theorem, coderivatives.

**AMS 2000 Subject Classification**   Primary: 49J53. Secondary: 49J52, 90C31.