1035-90-1483 **Humberto Munoz*** (hmunoz40@hotmail.com), Mathematics Department, Southern University and A&M College, Baton Rouge, LA 70813, and **Baker R Kearfott** (rbk5287@louisiana.edu.), Department of Mathematics, University of Louisiana, Lafayette, LA 70504-1010. *Robustness in Nonlinear Parameter Estimation with Interval Arithmetic.*

The reliable solution of nonlinear parameter estimation problems is an important computational problem in many areas of science and engineering, including such applications as real time optimization. Its goal is to estimate accurate model parameters that provide the best fit to measured data, despite small-scale noise in the data or occasional large-scale measurement errors (outliers). In general, the estimation techniques are based on some kind of least squares or maximum likelihood criterion, and these require the solution of a nonlinear and non convex optimization problem. Classical solution methods for these problems are local methods, and may not be reliable to find the global optimum, with no guarantee the best model parameters have been found. Interval arithmetic can be used to compute completely reliably the global optimum for the nonlinear parameter estimation problem. Finally, experimental results will compare the robustness of the regression methods that use the least squares, l_2, the least absolute value l_1 and l_∞ estimates. (Received September 20, 2007)