1098-49-27 **Daniel P Robinson*** (daniel.p.robinson@gmail.com), **Nick I. M. Gould**, **Frank E. Curtis** and **Philippe Toint**. *An Interior-Point Trust-Funnel Algorithm for Nonlinear Optimization.* Preliminary report.

I present an interior-point trust-funnel algorithm for solving extreme-scale nonlinear optimization problems. Our method, which is designed to solve problems with both equality and inequality constraints, achieves global convergence guarantees by combining a trust-region methodology with a funnel mechanism. The prominent features of our algorithm are that (i) the subproblems that define each search direction may be solved approximately, (ii) criticality measures for feasibility and optimality aid in determining which subset of computations will be performed during each iteration, (iii) no merit function or filter is used, (iv) inexact sequential quadratic optimization steps may be computed when advantageous, and (v) it may be implemented matrix-free so that derivative matrices need not be formed or factorized so long as matrix-vector products with them can be performed. (Received December 01, 2013)