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Ron Buckmire* (ron@oxy.edu), Fowler Hall, Room 313, Occidental College, 1600 Campus Road, Los Angeles, CA 90041, and **Ron S. Mickens** and **Karl karlmcm@gmail.com McMurtry**. *On Numerical Solutions of a Nonlinear Differential Equation with Square Root Dissipative Term.*

Interest in calculating numerical solutions of a highly nonlinear parabolic partial differential equation with fractional power dissipative terms that occurs in plasma physics motivated an investigation of differential equations with square root dissipative terms. Analysis of the numerical behavior of solutions to a corresponding ODE with square root term is conducted. Non-standard finite differences (NSFD) are employed in the approximation of numerical solutions to the ODE and PDE. Preliminary results are obtained, presented and analyzed. (Received August 10, 2007)