

1086-34-1007

Aghalaya S Vatsala* (vatsala@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504-1010, and **Sowmya Muniswamy** (sxm6009@louisiana.edu) and **Donna Sue Stutson** (dstutson@xula.edu). *Numerical Methods for Fractional Differential Equations Via Generalized Monotone Method*. Preliminary report.

Generalized monotone method is an efficient technique to solve fractional differential equations, specially with initial conditions. The method provides the existence of coupled minimal and maximal solutions. The method also provides both theoretical existence results as well as a numerical approach. Further, the approximations are solutions of very simple linear equations without requiring computing the Mittag- Leffler functions. The challenge is to compute the coupled lower and upper solutions that will be valid to any desired time interval. This is precisely what we do in this work and also present some numerical results. (Received September 17, 2012)