

1135-35-991

Pradeep Godar Chhetri* (pgc9509@louisiana.edu), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Aghalaya S Vatsala**. *Generalized Monotone Method for Riemann-Liouville Fractional Reaction Diffusion Equation with Applications*. Preliminary report.

In this work, initially we have obtained the integral representation form for the solution of the linear Riemann-Liouville fractional reaction diffusion equation of order q , where $0 < q < 1$. We have proved a comparison result relative to coupled lower and upper solutions of the nonlinear Riemann-Liouville reaction diffusion equation when the forcing term is the sum of a non-decreasing and non-increasing functions. Finally, we have proved generalized monotone method for the nonlinear Riemann-Liouville fractional reaction diffusion equation where the monotone sequences converge uniformly and monotonically to the coupled minimal and maximal solutions of the nonlinear problem. We have also proved that the solution is unique for the non-linear Riemann-Liouville fractional reaction diffusion equation. (Received September 22, 2017)