1145-34-743   **Yunxiang Bai*** (`yxb2781@louisiana.edu`), Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70504, and **Aghalaya S Vatsala**. *Nonlinear Caputo Impulsive Fractional Differential Equations and Generalized Monotone Method.* Preliminary report.

It is known that Caputo fractional differential equations play an important role in modeling physical situation. The models represented by Caputo fractional differential equation in general are better and efficient models than its counterpart with integer derivative models. In this work, we consider nonlinear Caputo impulsive fractional differential equations with initial conditions. Further, the impulses occur in the non-homogeneous term. Initially, we have computed the solution of the linear Caputo impulsive fractional differential equation explicitly using the method of mathematical induction. We have developed comparison results in terms of coupled lower and upper solutions when the nonlinear terms are sums of an increasing and decreasing functions of the unknown function. Finally, we have developed generalized monotone method for the nonlinear Caputo impulsive fractional Differential Equations with initial conditions using coupled lower and upper solutions. This proves the existence coupled minimal and maximal solutions of the nonlinear problem. Finally, under uniqueness condition, we prove the existence of the unique solution of the nonlinear Caputo fraction impulsive differential equation with initial condition. (Received September 13, 2018)