Generalized Monotone Method for Caputo Fractional Reaction-Diffusion Equation

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Abstract: In this paper, our aim is to obtain the integral representation for the solution of non-linear Caputo reaction-diffusion equation of order q, where \(0 < q < 1\), in term of Green’s function. We have developed a generalized monotone method for non-linear weakly coupled Caputo reaction-diffusion equation. The generalized monotone method yields monotone sequences which converges uniformly and monotonically to coupled minimal and maximal solutions. The existence of a unique solution for the non-linear Caputo reaction-diffusion equation is obtained.

Keywords: Caputo Fractional Derivative; Eigen Function; Non-Linear Weakly Coupled System; Coupled Upper And Lower Solutions; Generalized Monotone Method

REFERENCES


