UPPER AND LOWER BOUNDS OF SOLUTIONS FOR FRACTIONAL INTEGRAL EQUATIONS

Rabha W. Ibrahim and Shaher Momani

Abstract. In this paper we consider the integral equation of fractional order in sense of Riemann-Liouville operator

\[ u^m(t) = a(t)I^\alpha[b(t)u(t)] + f(t) \]

with \( m \geq 1 \), \( t \in [0,T] \), \( T < \infty \) and \( 0 < \alpha < 1 \). We discuss the existence, uniqueness, maximal, minimal and the upper and lower bounds of the solutions. Also we illustrate our results with examples.

References


2000 Mathematics Subject Classification: 34G10; 26A33; 34A12; 42B05.

Keywords: Riemann-Liouville operators; Upper and lower bound of solution; Volterra integral equation.

http://www.utgjiu.ro/math/sma


Rabha W. Ibrahim Shaher Momani
P.O. Box 14526, Sana’a, Department of Mathematics, Mutah University, Yemen. P.O. Box 7, Al-Karak, Jordan.
e-mail: rabbaiibrahim@yahoo.com e-mail: shahermm@yahoo.com

******************************************************************************

Surveys in Mathematics and its Applications 2 (2007), 145 – 156

http://www.utgjiu.ro/math/sma