

Solving Fuzzy Fractional IVPs of order 2β by Residual Power Series Algorithm

Abstract: In this paper, an efficient numeric-analytic algorithm has been applied based on the residual power series approach to solve fuzzy fractional initial value problems of order 2β , $0 < \beta \leq 1$, under the strongly generalized differentiability. The present method relies basically upon the concept of the residual functions and generalized Taylor formula that constructs analytical and approximate solutions in the form of rapidly convergent series according to their parametric form. To validate the efficiency, reliability, and applicability of the proposed approach, the experimental data has been presented.

Keywords: strongly generalized differentiability, Caputo fractional derivative, Residual power series algorithm, fuzzy fractional initial value problems.

Alaroud, M., Arqub, O. A., Edwan, R., Al-Smadi, M., & Momani, S. (2019, April). Solving Fuzzy Fractional IVPs of order 2β by Residual Power Series Algorithm. In 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT) (pp. 52-57). IEEE.