

# Adaptation of kernel functions-based approach with ABC distributed order derivative for solutions of fuzzy fractional Volterra and Fredholm integrodifferential equations

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## Abstract

Mathematical modeling of uncertain FIDEs is an extremely significant topic in electric circuits, signal processing, electromagnetics, and anomalous diffusion systems. Based on the RKA, a touching numerical approach is considering in this study to solve groups of FFIDEs with ABC fractional distributed order derivatives. The solution-based approach lies in generating infinite orthogonal basis from kernel functions, where uncertain condition is fulfilled. Thereafter, an orthonormal basis is erected to figurate fuzzy ABC solutions with series shape in idioms of  $\eta$ -cut extrapolation in Hilbert space  $A(D)$  and  $B(D)$ . In this orientation, fuzzy ABC fractional integral, fuzzy ABC fractional derivative, and fuzzy ABC FIDE are utilized and comprised. The competency and accuracy of the suggested approach are indicating by employing several experiments. From theoretical viewpoints, the acquired results signalize that the utilize approach has several merits in feasibility and opportunity for treating with many fractional ABC distributed order models. In the end, highlights and future suggested research work are eluded.

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