



A STUDY OF ASYMPTOTICALLY IDEAL EQUIVALENT FIBONACCI DIFFERENCE SEQUENCES IN INTUITIONISTIC FUZZY NORMED SPACES

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Abstract. This paper investigates the concepts of *asymptotically equivalent*, *asymptotically ideal equivalent*, and *strongly asymptotically ideal equivalent* Fibonacci difference sequences within the framework of *intuitionistic fuzzy normed spaces* (IFNS). Using the Fibonacci difference operator, we construct novel sequence spaces and analyze their fundamental topological and algebraic structures. We also establish necessary and sufficient conditions under which two sequences are asymptotically ideal equivalent in the IFNS setting. The results presented in this study extend classical convergence theories and generalize several known results in fuzzy normed sequence space theory, thereby contributing to the development of fuzzy analysis and its applications.

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