

ROUGH IDEAL CONVERGENT SEQUENCE SPACES OF BOUNDED LINEAR OPERATORS

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Abstract: In this paper, using the concept of rough ideal convergence in normed linear spaces, we introduce rough ideal convergence for bounded linear operators. We also introduce some rough ideal convergent sequence spaces of bounded linear operators and further investigate and study some inclusion relations of these spaces, decomposition theorem and algebraic properties.

Keywords and Phrases: Ideal, Filter, Rough Ideal Convergence, Bounded Linear Operator.

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1. Introduction and Preliminaries

Convergence of sequences has always remained a subject of interest to the researchers. Several new types of convergence of sequences were introduced and studied by the researchers and named as usual convergence, uniform convergence, strong convergence, weak convergence, statistical convergence, ideal convergence etc. In 2001, the notion of rough convergence was first introduced by Phu [22] for finite dimensional normed linear spaces. It is a new type of convergence which involves extending the radius of convergence of a non-convergent but bounded sequence.

Let (x_i) be a sequence in some normed linear space $(X, \|\cdot\|)$ and r be any non-negative real number. Then (x_i) is said to be r -convergent to x_* , denoted by