

# CERTAIN ASPECTS OF $\lambda_{st}^r(\mathcal{G})$ -CONVERGENCE OF SEQUENCES IN GRADUAL NORMED LINEAR SPACES\*

Ö. Kişi<sup>†</sup> C. Choudhury<sup>‡</sup>

DOI <https://doi.org/10.56082/annalsarscimath.2023.1-2.520>

## Abstract

In the present article, we set forth with the new notion of rough  $\lambda$ -statistical convergence in the gradual normed linear spaces. We produce significant results that present several fundamental properties of this notion. We also introduce the notion of  $\lambda_{st}^r(\mathcal{G})$ -limit set and prove that it is convex, gradually closed, and plays an important role for the gradually  $\lambda$ -statistical boundedness of a sequence.

MSC: 03E72, 40A35, 40A05

**keywords:** Gradual number, gradual normed linear space,  $\lambda$ -density,  $\lambda_{st}^r(\mathcal{G})$ -convergence,  $\lambda_{st}^r(\mathcal{G})$ -limit set.

## 1 Introduction

The notion of statistical convergence was first presented by Fast [22] and Steinhaus [35] independently in the year 1951. The main idea behind statistical convergence was the notion of natural density. The natural density of a set  $A \subseteq \mathbb{N}$  is denoted and defined by

---

\*Accepted for publication on November 12-th, 2022

<sup>†</sup>okisi@bartin.edu.tr, Department of Mathematics, Bartin University, Bartin, Turkey

<sup>‡</sup>chiranjibchoudhury123@gmail.com, chiranjib.mathematics@tripurauniv.in, Department of Mathematics, Tripura University (A Central University), Suryamaninagar-799022, Agartala, India