

**UNIFORM BOUNDEDNESS PRINCIPLE AND HAHN-BANACH
THEOREM FOR B-LINEAR FUNCTIONAL RELATED TO
LINEAR 2-NORMED SPACE**

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Abstract: In this paper, we will see that the Cartesian product of two 2-Banach spaces is also 2-Banach space and discuss some properties of closed linear operator in linear 2-normed space. We also describe the concept of different types of continuity of b-linear functional and derive the Uniform Boundedness Principle and Hahn-Banach extension theorem for b-linear functionals in the case of linear 2-normed spaces. We also introduce the notion of weak * convergence for the sequence of bounded b-linear functionals relative to linear 2-normed space.

Keywords and Phrases: Linear 2-normed space, 2-Banach space, Closed operator, Uniform Boundedness Principle, Hahn-Banach extension Theorem.

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1. Introduction

The Uniform boundedness principle is one of the most useful results in functional analysis which was obtained by S. Banach and H. Steinhaus in 1927 and it is