Abstract

The development of the study of sequence spaces got momentum by the introduction of new convergence methods and theories in the process, as well as a requirement. Some of them are statistical convergence, lacunary convergence, lacunary statistical convergence etc.

In the present thesis, we have basically concentrated on various type of convergence methods and developed new classes of statistical and lacunary convergent sequences by using Orlicz and Modulus functions. We have also introduced these convergence methods in the space of vector valued double difference sequences. The concept of statistical convergence which is defined for locally convex topological vector space, seminormed space etc. has been extended for the class of composite vector valued sequence spaces and further, we have proved some results analogues to the results obtained by earlier authors, like, Salat [1980], Fridy [1985], Connor [1988] etc. By combining the concepts of matrix summability, lacunary convergence, Orlicz functions, difference sequences we have obtained new class of sequence spaces which not only generalizes many known sequence spaces but also plays an important role in comparison to vector valued Δ-strongly Cesáro-type summable sequence spaces. Δ-lacunary A-statistical convergence is also introduced and the relations between the space of Δ-lacunary A-statistical convergent sequences and Δ-lacunary strong A-convergent vector valued sequence space have been obtained.

Keywords: Composite vector valued sequence space, paranormed space, lacunary convergence, statistical convergence, lacunary-statistical convergence, double sequence space, Cesáro summability, lacunary double sequence.

IIT, Kharagpur (Anindita Basu)
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