Acta Universitatis Apulensis No. 41/2015
ISSN: 1582-5329 pp. 141-151
http://www.uab.ro/auajournal/ doi: 10.17114/j.aua.2015.41.11

$\mathcal{I}$-ASYMPTOTICALLY LACUNARY EQUIVALENT SET SEQUENCES DEFINED BY A MODULUS FUNCTION

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Abstract. Let $\mathcal{I} \subseteq 2^{\mathbb{N}}$ be a non-trivial ideal, $\theta = (k_r)$ be a lacunary sequence and f be a modulus function. Our aim in this study is to introduce some new notions such that $\mathcal{I}_W(f)-$asymptotic equivalence, $\mathcal{I}_W(w_f)-$asymptotic equivalence and $\mathcal{I}_W(N_\theta^f)-$asymptotic equivalence for set sequences. We also prove some inclusion theorems.

2010 *Mathematics Subject Classification*: 40G15, 40A35.

Keywords: Asymptotic equivalence, lacunary sequences, $\mathcal{I}-$convergence, Wijsman convergence, modulus function.

1. Introduction

Asymptotic equivalence was introduced by Pobyvanets [24] and Marouf extended Pobyvanets's work [20]. Patterson, Savaş and some other authors studied on this concept and they extended asymptotic equivalence to asymptotic statistical equivalence and asymptotic lacunary statistical equivalence. [21, 22]

Das, Savaş and Ghosal in [7] introduced $\mathcal{I}$-statistical convergence and $\mathcal{I}$-lacunary statistical convergence with ideal. Also in [25], $\mathcal{I}$-asymptotically statistical equivalent and $\mathcal{I}$-asymptotically lacunary statistical equivalent sequences were studied.

Wijsman statistical convergence which is implementation of the concept of statistical convergence to sequences of sets presented by Nuray and Rhoades [18]. After this definition, Ulusu and Nuray [28] introduced Wijsman lacunary statistical convergence of set sequences. In [29] they also defined asymptotically lacunary statistical equivalent set sequences and presented theorems about asymptotic equivalence Wijsman sense. In addition, they also presented asymptotically equivalent (Wijsman sense) analogs of theorems in [29].

Recently, Kişi, Savaş and Nuray [12] introduced $\mathcal{I}$-asymptotically statistical equivalent and $\mathcal{I}-$asymptotically lacunary statistical equivalent set sequences.

In this paper we introduce the concepts of $\mathcal{I}_W(f)$-asymptotically equivalent, $\mathcal{I}_W(w_f)$-asymptotically equivalent and $\mathcal{I}_W(N_\theta^f)$-asymptotically equivalent set sequences and we present some natural inclusion theorems.