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Reviewer: George U. Brauer

Reviewer number: 003307

Address:
Math Depart.
University of Minnesota
Minneapolis, MN 55455
minette@math.umn.edu

Author: Hoim, Terje, Turnpu, Heino

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Review text:

Let $\lambda = \{\lambda_n\}$, $\mu = \{\mu_n\}$ be two positive sequences increasing to infinity; such sequences are called speeds. A sequence of functions $\{f_n(t)\}$ in the space $M(a,b)$ of measurable functions on an interval $[a,b]$ is said to be λ mes μ-convergent to $f(t)$ on $[a,b]$ if $\lim\limits_{n\to\infty} \lambda_n$ mes $\{t : \mu_n|f_n(t) - f(t)\} = \alpha\}$ exists for each positive number α; if $\mu_n = 1$ for each n, then the sequence $\{f_n\}$ is said to be λ mes convergent to $f(t)$. The sequence is said to be mes λ-convergent to f if for each positive number $\alpha lim_{n\to\infty}$ mes $\{t : \lambda_n|f_n(t) - f(t)| \geq \alpha\} = 0$, if $\lambda_n = 1$ for each n the sequence $\{f_n(t)\}$ converges in measure to $f(t)$. The set of mes λ-convergent (λ mes-convergent, λ mes μ-convergent) sequences in $M(a,b)$ is denoted by $c_{mes\lambda}(c_{\lambda mes}, c_{\lambda mes\mu})$; the set of sequences mesλ-convergent, λ mes convergent, λ mes μ convergent to 0) is denoted by $c^o_{mes\lambda}(c^o_{\lambda mes}, c^o_{\lambda mes\mu})$. The set of λ-convergent sequences is denoted by c^λ. If the sequence $\{f_n\}$ is mesλ-convergent (λ mes-convergent, λ mes μ-convergent, μ mes λ-convergent, λ mes λ-convergent for each speed λ), then $\{f_n\}$ is said to be mes ∞-convergent (∞ mes-convergent, ∞ mes μ-convergent, μ mes ∞-convergent, ∞ mes ∞-convergent). The symbol $c_{mes\infty}$ ($c_{\infty mes}, c_{\lambda mes\infty}, c_{\infty mes\lambda}, c_{\infty mes\infty}$) denotes the set of mes$\infty$-convergent ($\infty$ mes-convergent, λ mes ∞-convergent ∞ mes λ-convergent, ∞ mes ∞-convergent) sequences in $M(a,b)$. It is shown that the sequence $\{f_n\}$ is in $c^o_{\lambda mes\infty}$ iff $\lim\limits_{n\to\infty} \lambda_n$ mes (support f_n) $= 0$. The sequence $\{f_n\}$ is in $c^o_{\infty mes\infty}$ iff there exists a natural number n_0 such that for $n > n_0$ $f(t)$ vanishes almost everywhere on $[a,b]$.

Let $A = (a_{nk})$ be a summation matrix which transforms a sequence $\{f_n\}$ into a sequence $\{g_n\}$, where $\{g_n\} = A\{f\}_n = \{\sum_{n=0}^\infty a_{nk} f_k\}$. The matrix A transforms sequences in $c^o_{mes\infty}$ into sequences in $c^o_{\mu mes}$ iff there exists a natural number M such that $a_{nk} = 0$ for $n > M$, $k > M$. The matrix A transforms sequences in $c_{mes\lambda}$ into sequences in $c_{mes\mu}$ iff it transforms sequences in c^λ into sequences in c^μ and there exists a natural number L such that each row of A has less than L non-zero elements.