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ON THE ABSOLUTE RIESZ SUMMABILITY FACTORS

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ABSTRACT. In this paper a theorem on $|\overline{N}, p_n|_k$ summability factors, which generalizes a theorem of Mazhar [**6**] on $|C, 1|_k$ summability factors of infinite series, has been proved. We also apply it to Fourier series.

1. Introduction. Let $\sum a_n$ be a given infinite series with the partial sums (s_n). We denote by u_n and t_n the nth $(C, 1)$ means of the sequences (s_n) and (na_n), respectively. The series $\sum a_n$ is said to be summable $|C, 1|_k$, $k \geq 1$, if (see [**3**])

$$\sum_{n=1}^{\infty} n^{k-1} |u_n - u_{n-1}|^k < \infty. \tag{1.1}$$

But since $t_n = n(u_n - u_{n-1})$ (see [**5**]) condition (1.1) can also be written as

$$\sum_{n=1}^{\infty} \frac{1}{n} |t_n|^k < \infty. \tag{1.2}$$

Let (p_n) be a sequence of positive numbers such that

$$P_n = \sum_{v=0}^{n} p_v \to \infty \quad \text{as } n \to \infty, \qquad P_{-i} = p_{-i} = 0, \quad i \geq 1. \tag{1.3}$$

The sequence-to-sequence transformation

$$w_n = \frac{1}{P_n} \sum_{v=0}^{n} p_v s_v \tag{1.4}$$

defines the sequence (w_n) of the Riesz means, or simply the $(\overline{N}, p_n)$ means, of the sequence (s_n) generated by the sequence of coefficients

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