

Zbl 018.29301

Erdős, Paul

*On the density of some sequences of numbers. III.* (In English)

**J. London Math. Soc. 13, 119-127 (1938).**

The author extends his previous work (see Zbl 012.01004 and Zbl 016.01204) on the distribution of the values of an additive arithmetical function  $f(m)$ . The restriction  $f(m) \geq 0$  is removed, and the results obtained in the present paper include those proved by *I.J.Schoenberg* (see Zbl 013.39302) using analytical methods. The main results are:

(1) If  $\sum_{p, |f(p)| > 1} \frac{1}{p}$ ,  $\sum_{p, |f(p)| \leq 1} \frac{f(p)}{p}$ ,  $\sum_{p, |f(p)| \leq 1} \frac{f^2(p)}{p}$  ( $p$  running through primes) all converge, then the distribution-function for  $f(m)$  exists.

(2) If  $\sum_{f(p) \neq 0} \frac{1}{p}$  diverges, the distribution-function is continuous, and if it converges, the distribution-function is purely discontinuous. The proofs are elementary, but more complicated than those of I and II.

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Classification:

11N60 Distribution functions (additive and positive multipl. functions)