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**Zbl 593.10036****Erdős, Paul***On two unconventional number-theoretic functions and on some related problems.* (In English)**Calcutta Math. Soc. Diamond-Cum-Platinum Jubilee Commem. Vol. (1908- 1983), Pt. 1, 113-121 (1984).**

[For the entire collection see Zbl 584.00012.]

The author proves a number of results and formulates conjectures about two number-theoretic functions related to the distribution of the prime divisors of an integer. One of the two functions is defined as

$$f(n) = \sum_{\substack{p|n, \\ p^\alpha \leq n < p^{\alpha+1}}} p^\alpha.$$

Among other things, the author shows that  $m(x) = \max_{n \leq x} f(n)$  satisfies

$$m(x) \leq (1 + o(1))x \log x / \log \log x \text{ as } x \rightarrow \infty,$$

and conjectures that in this bound one has asymptotic equality. He further states that the logarithmic density of the set of integers  $n$  satisfying  $f(n) \leq cn$  exists for any  $c$  and is a continuous function of  $c$ .

*A.Hildebrand*

Classification:

11N37 Asymptotic results on arithmetic functions

11K65 Arithmetic functions (probabilistic number theory)

Keywords:

arithmetic functions; conjectures; prime divisors; logarithmic density