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Erdős, Paul; Pomerance, Carl

On the largest prime factors of n and $n+1$. (In English)

Aequationes Math. 17, 311-321 (1978). [0001-9054]

The authors prove some interesting results which give a comparison of the largest prime factors of n and $n+1$. Let $P(n)$ denote the largest prime factor of n. Then one of the impressive results proved is that the number of $n \leq x$ for which $P(n) > P(n+1)$ is $\gg x$ for all large x. Another of them is about numbers n for which $f(n) = f(n+1)$ where by $f(n)$ we mean $\sum_{p_i^{a_i} \| n} a_i p_i$. Such numbers are called Aaron numbers. The authors prove that the number of Aaron numbers $\leq x$ is $O_\varepsilon(x(\log x)^{-1+\varepsilon})$. The results can find other attractive results in the body of the paper.

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Classification:
11N05 Distribution of primes
11N37 Asymptotic results on arithmetic functions
11A41 Elemementary prime number theory