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Title: On the distribution mod 1 of $\alpha\sigma(n)$

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The sequence $x_n = F(n) + \alpha\sigma(n) \pmod{1}$ is investigated, where $\sigma(n)$ = sum of divisors of n , F is an additive arithmetical function. In an earlier paper De Koninck and the author proved that $x_n \pmod{1}$ is uniformly distributed if the approximation type of α is finite, and formulated the conjecture that it holds for every irrational α . In this paper it is proved that the conjecture is not true in general, and it is true if $\alpha \in \mathcal{K}^*$. $\mathcal{K}^*$ is defined as follows. Let $M_x = \prod_p p^{r_p}$, p runs over the primes and r_p is the integer part of the number stated in the right hand side of (2.7). Let $\mathcal{K} = \mathcal{K}_x$ be the set of those irrational α , for which $\min_{H|M_x} \|H\alpha\|x > 1$ holds for every large x , $\mathcal{K}^* = \{\alpha \mid j\alpha \in \mathcal{K}\}$ for every $j = 1, 2, \dots$.

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