

**Allouche, J.-P.; Sondow, J.**

**Infinite products with strongly  $B$ -multiplicative exponents.** (English) Zbl 1174.11006

Ann. Univ. Sci. Budap. Rolando Eötvös, Sect. Comput. 28, 35-53 (2008).

In the first part of the paper, the authors generalize the notion of strongly  $B$ -multiplicative sequence and prove the convergence of infinite products of the type  $\prod_{n \geq \delta_k} \left( \frac{Bn+k}{Bn+k+1} \right)^{u(n)}$ , where  $B > 1$  is integer,  $u(n)_{n \geq 0}$  satisfies their definition and has additional properties,  $k$  is a non-negative integer less than  $B$ , and  $\delta_k$  is 1 if  $k = 0$  and 0 otherwise. The rest of the article is devoted to computing some infinite products of the kind and their additive counterparts. Appropriate specializations of the main results yield values to some infinite products associated with counting the sum of digits or the number of occurrences of several given digits in the base  $B$  expansion of an integer.

Reviewer: [Mihai Cipu \(București\)](#)

**MSC:**

[11A63](#) Radix representation; digital problems

[11Y60](#) Evaluation of number-theoretic constants

Cited in **6** Documents

**Keywords:**

[strongly  \$B\$ -multiplicative sequence](#); [B-ary expansion](#); [infinite products](#)