

Nowak, Werner Georg

On the average number of finite Abelian groups of a given order. (English) Zbl 0749.11043
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Let $a(n)$ denote the number of non-isomorphic Abelian groups of order n , *J.-M. De Koninck* and *A. Ivić* [Topics in arithmetical functions (North Holland 1980; [Zbl 0442.10032](#))] established an asymptotic formula for the sum $\sum_{n \leq x} 1/a(n)$. In this article, a more precise asymptotic expansion with an error term which is best possible on the basis of the present knowledge about the zeros of the Riemann zeta-function is established. This result is obtained as a special case of a more general theorem which applies to all multiplicative and prime-independent arithmetic functions $a(n)$ which satisfy $a(p) = 1$ for each prime p and $a(n) \geq 1$ for every positive integer n .

Reviewer: [Lu Minggao \(Hefei\)](#)

MSC:

11N45 Asymptotic results on counting functions for algebraic and topological structures Cited in **3** Documents
20K99 Abelian groups

Keywords:

number of non-isomorphic Abelian groups; sum of reciprocals; multiplicative prime-independent function; asymptotic expansion; error term

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