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The complete asymptotic expansions for the Szász-Mirakjan-type operators. (English summary)

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Consider the classical Szász-Mirakjan operators and two kinds of integral modifications of them, that is the so-called Szász-Mirakjan-Kantorovich operators and the Szász-Mirakjan-Durrmeyer operators.

In this paper the authors obtain the complete asymptotic expansions of such operators, in the form

$$L_n(f; x) \sim f(x) + \sum_{k=1}^{\infty} a_k(f; x)n^{-k} \quad (n \rightarrow \infty),$$

by applying some general results due to A.-J. López-Moreno and F.-J. Muñoz-Delgado [*J. Comput. Appl. Math.* **150** (2003), no. 2, 219–251; [MR1947745 \(2003i:41040\)](#); *Numer. Algorithms* **39** (2005), no. 1-3, 237–252; [MR2137754 \(2005m:41051\)](#)].

All coefficients a_k ($k \geq 1$) are independent of n and are calculated explicitly in terms of the Stirling numbers of the first and the second kind.

It is worthwhile to remark that, among some preliminary results, they also establish two formulae in combinatorics which are quite interesting themselves.

Reviewed by *Vita Leonessa*

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