Koepf, Wolfram

On the Fekete-Szegő problem for close-to-convex functions. (English) Zbl 0635.30019

Proc. Am. Math. Soc. 101, 89-95 (1987).

Fekete-Szegö were first to prove that $\max_{f\in S} |a_3-\lambda a_2^2| = 1+2\exp[-2\lambda(1-\lambda)]$, $\lambda \in [0,1]$. In this paper the author solves the similar question for the class of close-to-convex functions. In particular: $||a_3|-|a_2|| \leq 1$ for the class of close-to-convex functions, while the result for the class S is $\max_s ||a_3|-|a_2|| = 1.029...$ Among other means, the author uses the following result of the present author [Coefficients of symmetric functions of bounded boundary rotation (to appear)]. Lemma 1. Let f be a close to convex normalized function in the unit disc. Then h defined by

$$h'(z) = [f'(z^2)]^{1/2}, \quad h(0) = 0,$$

is an odd close-to-convex function of order $1/2$.

Reviewer: D.Aharonov

MSC:

30C45 Special classes of univalent and multivalent functions of one complex variable (starlike, convex, bounded rotation, etc.)
30C50 Coefficient problems for univalent and multivalent functions of one complex variable
30C70 Extremal problems for conformal and quasiconformal mappings, variational methods

Keywords:
Fekete-Szegö problem; close-to-convex functions

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