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Koepf, Wolfram
On nonvanishing univalent functions with real coefficients. (English)
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Let $S_0(R)$ be the class of all functions analytic and univalent in the unit disc D that satisfy the conditions

$$(i) \quad f(z) = 1 + \sum_{k=1}^{\infty} a_k z^k, \quad (ii) \quad a_k = \bar{a}_k, \quad (iii) \quad 0 \notin f().$$

The author shows that (i) every extreme point of $S_0(R) \cup \{1\}$ has the form

$$(1+z)^2[(1-yz)(1-\bar{y}z)]^{-1} \quad or \quad (1-z)^2[(1-yz)(1-\bar{y}z)]^{-1}, \quad y \in \partial \setminus \{1\}.$$

(ii) Every support point of $S_0()$ has the form

$$1 + kz[(1-yz)(1-yz)]^{-1} for some y \in \partial$$

and $k \in [-2(1-Rey), 2(1+Rey)]$, $k \neq 0$. The main tool used here is a result of *L. Brickman* [Bull. Am. Math. Soc. 76, 372-374 (1970; Zbl 189, 88)].

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Classification:

- 30C45 Special classes of univalent and multivalent functions
- 30C75 Extremal problems for (quasi-)conformal mappings, other methods