Anisiu, Valeriu; Mocanu, Petru T.
On a simple sufficient condition for starlikeness. (English) Zbl 0716.30003

Let $f$ be an analytic function in the unit disc $U = \{z \in \mathbb{C}, |z| < 1\}$ with $f(0) = 0$. The basic result of the paper is the following sufficient condition for starlikeness: If $f$ satisfies the inequality

$$|f''(z)/f'(z)| \leq M^*, \quad z \in U,$$

where $M^* = \sqrt{1 + y^2} = 2.83...$, $y$ is the smallest positive root of the equation $y \sin y + \cos y = 1/e$, then $f$ is starlike. The bound $M^*$ cannot be replaced by any larger number.

Reviewer: St.Walczak

MSC:

30C45 Special classes of univalent and multivalent functions of one complex variable (starlike, convex, bounded rotation, etc.)

30C75 Extremal problems for conformal and quasiconformal mappings, other methods

30C80 Maximum principle, Schwarz's lemma, Lindelöf principle, analogues and generalizations; subordination

Keywords: starlikeness