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