

Classes of holomorphic functions whose derivatives have positive real part

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Starting from paper [4] written by T.H. MacGregor we discuss about normalized holomorphic functions whose derivatives have positive real part. For the class

$$R = \{f \in S : \operatorname{Re}[f'(z)] > 0, z \in U\}$$

we present a general distortion result (some upper bounds for the modulus of the k -th derivative of a function). We also prove some remarks on the functions whose derivatives have positive real part of order $\alpha \in [0, 1)$. We denote this class with

$$R(\alpha) = \{f \in S : \operatorname{Re}[f'(z)] > \alpha, z \in U\}.$$

More details about holomorphic functions and classes of functions whose derivatives have positive real part can be found in [1, Chapter 2], [3], [4], [5, Chapter 4] and [6].

Based on paper [2] in the last part of the presentation we discuss about two new subclasses of normalized holomorphic functions whose derivatives have positive real part which generalize the classes R and $R(\alpha)$. For these subclasses (denoted here R_p and $R_p(\alpha)$) we present some particular results and examples.

References

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