THE NECESSARY AND SUFFICIENT CONDITIONS FOR GENERAL HADAMARD PRODUCT OF CLASSES OF ANALYTIC FUNCTIONS

LIANGPENG XIONG

Abstract. Let $P_n(A,B)$ be the classes of analytic functions $f(z)$, where $f(z) \sim \frac{a + Az}{1 - Bz}$, $A + aB \neq 0$ and $|B| \leq 1$. For classes $\mathcal{H}_1, \mathcal{H}_2, \cdots, \mathcal{H}_n$ of analytic functions, we define the general hadamard product of the form $\mathcal{H}_1*l_1. \mathcal{H}_2*l_2. \cdots. \mathcal{H}_n*(z) = \{f_1*l_1. f_2*l_2. f_3* \cdots * l_{n-1}. f_n(z): f_i \in \mathcal{H}_i, i = 1, 2, \ldots, n, n \in \mathbb{Z}^+, l_i \in \mathbb{C}\}$. In this paper, we discuss the conditions for equality $P_{\gamma_1}(A_1, B_1) * P_{\gamma_2}(A_2, B_2) * \cdots * P_{\gamma_{n-1}}(A_{n-1}, B_{n-1}) = P_{\gamma}(X, Y)$. Some consequences of the main results for known classes of analytic functions are also pointed out.


Keywords and phrases: Analytic function, Hadamard product, subordination, geometric function.

REFERENCES