ON SPECIAL DIFFERENTIAL SUBORDINATIONS
USING SĂLĂGEAN AND RUSCHEWEYH OPERATORS

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Abstract. In the present paper we define a new operator using the Sălăgean and Ruscheweyh operators. By L_α^n we denote the operator given by $L_\alpha^n : A \to A$, $L_\alpha^n f(z) = (1-\alpha)R^n f(z) + \alpha S^n f(z)$, for $z \in U$, where $R^n f(z)$ denotes the Ruscheweyh derivative, $S^n f(z)$ is the Sălăgean operator and $A_n = \{f \in \mathscr{H}(U) : f(z) = z + a_{n+1}z^{n+1} + \ldots, z \in U\}$ is the class of normalized analytic functions with $A_1 = A$. A certain subclass, denoted by $S_n(\delta, \alpha)$, of analytic functions in the open unit disc is introduced by means of the new operator. By making use of the concept of differential subordination we derive various properties and characteristics of the class $S_n(\delta, \alpha)$. Also, several differential subordinations are established regarding the operator L_α^n.

Mathematics subject classification (2000): 30C45, 30A20, 34A40.

Keywords and phrases: Differential subordination, convex function, best dominant, differential operator.

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Paper MIA-12-61

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