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Generalized Integral Operator and Multivalent Functions

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Abstract: Let $\mathcal{A}(p)$ be the class of functions $f: f(z) = z^p + \sum_{j=1}^{\infty} a_j z^{p+j}$

analytic in the open unit disc E. Let, for any integer

 $n>-p, \quad f_{n+p-1}(z)=rac{z^p}{(1-z)^{n+p}}.$ We define $f_{n+p-1}^{(-1)}(z)$ by using

convolution \star as $f_{n+p-1}(z)\star f_{n+p-1}^{(-1)}(z)=\frac{z^P}{(1-z)^{n+p}}.$ A function p,

analytic in E with p(0)=1, is in the class $P_k(\rho)$ if

 $\int_0^{2\pi} \left| rac{Rep(z) -
ho}{p -
ho}
ight| d heta \leq k\pi$, where $z = re^{i heta}, k \geq 2$ and $0 \leq
ho < p$. We

use the class $P_{\mathbf{k}}(
ho)$ to introduce a new class of multivalent analytic

functions and define an integral operator $I_{n+p-1}(f) = f_{n+p-1}^{(-1)} \star f(z)$

for f(z) belonging to this class. We derive some interesting properties of

this generalized integral operator which include inclusion results and radius problems.



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