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93m:30012

Koepf, W.

Parallel accessible domains and domains that are convex in some direction. (English summary)

Partial differential equations with complex analysis, 93–105, *Pitman Res. Notes Math. Ser.*, 262, *Longman Sci. Tech.*, *Harlow*, 1992.

30C45

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The author uses the Schwarz-Christoffel transformation to obtain new proofs of some results on functions convex in some direction. Let $\tilde{P}$ be the class of functions regular in $D = \{z\colon |z| < 1\}$ with $p(0) = 1$ and $\mathrm{Re}(e^{i\alpha}p) > 0$ in D for some real α. Let A be the set of functions analytic in D with $f(0) = 0$ and $f'(0) = 1$.

   Theorem 1: A function f in A is univalent and $f(D)$ is strongly parallel accessible iff there is an x with $|x| = 1$ and a p in $\tilde{P}$ such that $(*)$ $(1 - xz)^2 f'(z) = p$. Theorem 2: In Theorem 1 replace strongly by weakly and $(*)$ by $(1 - xz)(1 - yz)f'(z) = p$, where $|x| = |y| = 1$. These theorems are generalized to parallel accessibility of order β where p is replaced by p^{β} with $0 \le \beta < 1$.

   {For the entire collection see 93h:35005}

Reviewed by *A. W. Goodman*

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