

SHARP INEQUALITIES FOR HERMITIAN–TOEPLITZ DETERMINANTS OF STRONGLY OZAKI CLOSE-TO-CONVEX FUNCTIONS

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Abstract. Sharp lower and upper bounds are found of the second and third order Hermitian-Toeplitz determinants for the class $\mathcal{F}_O(\lambda, \beta)$ of strongly Ozaki close-to-convex functions.

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REFERENCES

- [1] MD FIROZ ALI, D. K. THOMAS, A. VASUDEVARAO, *Toeplitz determinants whose elements are the coefficients of analytic and univalent functions*, Bull. Aust. Math. Soc. **97** (2018), no. 2, 253–264.
- [2] V. ALLU, A. LECKO, D. K. THOMAS, *Hankel, Toeplitz and Hermitian-Toeplitz determinants for certain close-to-convex functions*, Mediterr. J. Math. **19** (1), (2022), Art. 22, 1–17.
- [3] V. ALLU, N. TUNESKI, D. K. THOMAS, *On Ozaki close-to-convex functions*, Bull. Aust. Math. Soc. **99** (1), (2019), 89–100.
- [4] C. CARATHÉODORY, *Über den Variabilitätsbereich der Koeffizienten von Potenzreihen, die gegebene werte nicht annehmen*, Math. Ann. **64** (1907), 95–115.
- [5] K. CUDNA, O. S. KWON, A. LECKO, Y. J. SIM, B. ŚMIAROWSKA, *The second and third-order Hermitian Toeplitz determinants for starlike and convex functions of order α* , Bol. Soc. Mat. Mex **26** (2020), 361–375.
- [6] A. W. GOODMAN, *Univalent Functions*, Mariner, Tampa, Florida, 1983.
- [7] B. KOWALCZYK, O. S. KWON, A. LECKO, Y. J. SIM, B. ŚMIAROWSKA, *The third-order Hermitian Toeplitz determinant for classes of functions convex in one direction*, Bull. Malays. Math. Sci. Soc. **43** (2020), 3143–3158.
- [8] C. POMMERENKE, *Univalent Functions*, Vandenhoeck & Ruprecht, Göttingen, 1975.
- [9] M. S. ROBERTSON, *On the theory of univalent functions*, Ann. of Math. **37** (1936), 374–408.
- [10] D. K. THOMAS, N. TUNESKI, A. VASUDEVARAO, *Univalent Functions: A Primer*, De Gruyter Studies in Mathematics **69**, De Gruyter, Berlin, Boston, 2018.
- [11] S. VERMA, D. K. THOMAS, *Invariance of the coefficients of strongly convex functions*, Bull. Aust. Math. Soc. **95** (3) (2017), 436–445.