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SCHATTEN NORMS OF TOEPLITZ MATRICES WITH FISHER-HARTWIG SINGULARITIES*

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Abstract. The asymptotics of the Schatten norms of finite Toeplitz matrices generated by functions with a Fisher-Hartwig singularity are described as the matrix dimension n goes to infinity. The message of the paper is to reveal some kind of a kink: the pth Schatten norm increases as n to the power $1/p$ before the singularity reaches a critical point and as n to an exponent depending on the singularity beyond the critical point.

Key words. Toeplitz matrix, Schatten norm, Fisher-Hartwig singularity, Avram-Parter theorem, Szegö theorem.

AMS subject classifications. 47B35, 15A60.

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