POLARIZATION OF AN INEQUALITY

IVO KLEMEŠ

Abstract. We generalize a previous inequality related to a sharp version of the Littlewood conjecture on the minimal $L_1$-norm of $N$-term exponential sums $f$ on the unit circle. The new result concerns replacing the expression $\log(1+t|f|^2)$ with $\log\left(\sum_{k=1}^{K} t_k|f_k|^2\right)$. The proof occurs on the level of finite Toeplitz matrices, where it reduces to an inequality between their polarized determinants (or “mixed discriminants”).

Keywords and phrases: Littlewood polynomial, exponential sum, 1-norm, inequality, Toeplitz matrix, (0,1) matrix, determinant, mixed discriminant.

REFERENCES