# A LOWER BOUND FOR THE VARIANCE OF GENERALIZED DIVISOR FUNCTIONS IN ARITHMETIC PROGRESSIONS

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ABSTRACT. The aim of this talk is to explain how we can find a lower bound for the variance in arithmetic progressions of a large class of multiplicative functions, referred to as generalized divisor functions. A direct corollary is a lower bound for the corresponding variance of any $\alpha$-fold divisor function, for any complex number $\alpha \notin \{1,0\} \cup -\mathbb{N}$, even when considering a sequence of parameters $\alpha$ converging in a proper way to 1. Our work builds on that of Harper and Soundararajan, who set the basics for the study of lower bounds for variances of complex sequences in arithmetic progressions and also handled the particular case of $k$-fold divisor functions $d_k(n)$, with $k \in \mathbb{N}_{\geq 2}$.

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