

PUBLICATION LIST

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1) *Lehmer k -tuples*. (with A. Zaharescu and E. Alkan), Proc. Amer. Math. Soc. **134** (2006), no. 10, 2807–2815.

ABSTRACT. Generalizing a classical problem of Lehmer, we introduced the notion of Lehmer k -tuple, found an asymptotic result for the number of such k -tuples, and showed that they are uniformly distributed.

2) *Siegel's trace problem and character values of finite groups* (with A. Zaharescu), J. Reine Angew. Math. **637**, (2009), 217-234.

ABSTRACT. In this paper we investigate some questions related with Siegel's trace problem in abelian fields, and present an application of this type of results to character values of finite groups.

3) *The Siegel norm of algebraic numbers* (with A. Zaharescu), Bull. Math. Soc. Sci. Math. Roumanie, Tome **55** (103), no. 1, (2012), 69–77.

ABSTRACT. In this paper we investigate connections between the Siegel norm and the spectral norm on the algebraic closure $\overline{\mathbb{Q}}$ of \mathbb{Q} , and their extensions to the spectral completion $\widetilde{\overline{\mathbb{Q}}}$ of $\overline{\mathbb{Q}}$.

4) *The Siegel norm, the length function and character values of finite groups* (with A. Malik and A. Zaharescu), Indag. Math. (N.S.) **25** (2014), no. 3, 475-486.

ABSTRACT. In this paper we present some new results on the connection between the Siegel norm, the length function and irreducible character values of finite groups. In addition, we provide algorithms to compute the length of a cyclotomic integer and the set of cyclotomic integers with Siegel norm bounded by a given positive real number.

5) *Weil numbers in finite extensions of \mathbb{Q}^{ab} : the Loxton-Kedlaya phenomenon* (with A. Zaharescu), Trans. Amer. Math. Soc. **367** (2015), no. 6, 4359–4376.

ABSTRACT. A finiteness phenomenon found by Loxton and rediscovered by Kedlaya states that for any fixed m , there exist (modulo multiplication by roots of unity) only finitely many m -Weil numbers in \mathbb{Q}^{ab} . In the present paper we show that this phenomenon appears for all finite extensions of \mathbb{Q}^{ab} . We canonically associate to any finite extension K of \mathbb{Q}^{ab} a certain abelian group, and prove that it is free, of finite rank $r_{m,K}$. We call this number the Loxton-Kedlaya rank.

6) *An effective bound for the cyclotomic Loxton-Kedlaya rank* (with C. Beli and A. Zaharescu), *Glasg. Math. J.* **60** (2018), no. 1, 97-110.

ABSTRACT. In this paper we provide an explicit upper bound for the Loxton-Kedlaya rank of the maximal abelian extension of \mathbb{Q} .

7) *Siegel-type limit points above the PSZ curve*, submitted.

ABSTRACT. Let \mathcal{F} be the set of minimal polynomials of totally real and positive algebraic integers. An element f of \mathcal{F} can be written as $f = x^n - a_{n-1}x^{n-1} + \cdots + (-1)^n a_0$, with $a_i \in \mathbb{Z}^+$, for all $0 \leq i \leq n-1$. A Siegel-type point is a limit point of the set

$$\mathcal{P} = \left\{ \left(\frac{d}{n}, \left(\frac{a_{n-d}}{\binom{n}{d}} \right)^{1/d} \right) \in \mathbb{R}^2 : f \in \mathcal{F}, 1 \leq d \leq n \right\}$$

In this paper we investigate the location of these Siegel-type points and study some of their properties. We show that the points (x, y) high enough in the strip $0 < x < 1$ are close to Siegel-type points.