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*Irreducible characters with bounded root Artin conductor*

Let  $K$  be an algebraic number field such that  $K/\mathbb{Q}$  is Galois and let  $\chi$  be the character of a linear representation of  $Gal(K/\mathbb{Q})$ . The Artin conductor  $f_\chi$  of  $\chi$  is given by

$$f_\chi = \prod_{p \neq \infty} p^{f_p(\chi)}$$

with

$$f_p(\chi) = \frac{1}{|G_0|} \sum_{j \geq 0} (|G_j| \chi(1) - \chi(G_j)),$$

where  $G_i$  is the  $i$ -th ramification group of  $K_{\mathfrak{b}}/\mathbb{Q}_p$  with  $\mathfrak{b}$  a prime over  $p$  and  $\chi(G_j) = \sum_{g \in G_j} \chi(g)$ .

In this talk, we will prove that the growth of the Artin conductor is at most, exponential in the degree of the character.