

# ON ELEMENTS WITH INDEX DIVISIBLE BY FIXED PRIMES IN A PARAMETRIC FAMILY OF BICYCLIC BIQUADRATIC FIELDS

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## Abstract

In this talk we will present some results about primitive integral elements  $\alpha$  in the family of bicyclic biquadratic fields  $L_c = \mathbb{Q}(\sqrt{(c-2)c}, \sqrt{(c+4)c})$  which have index  $\mu(\alpha)$  divisible by fixed primes and coprime coordinates in given integral bases. Precisely, we show that if  $c \geq 11$  and  $\alpha$  is an element with index  $\mu(\alpha) = 2^a 3^b \leq c + 1$ , then  $\alpha$  is an element with minimal index  $\mu(\alpha) = \mu(L_c) = 12$ . We also show that for every integer  $C_0 \geq 3$  we can find effectively computable constants  $M_0(C_0)$  and  $N_0(C_0)$  such that if  $c \leq C_0$ , then there are no elements  $\alpha$  with index of the form  $\mu(\alpha) = 2^a 3^b$ , where  $a > M(C_0)$  or  $b > N(C_0)$ .