

An arithmetic Zariski pair of line arrangements with non-isomorphic fundamental group

Enrique Artal Bartolo, Universidad de Zaragoza

B. Guerville found a combinatorics of line arrangements whose realizations live in the cyclotomic group of the fifth roots of unity and such that their non-complex-conjugate embeddings are not topologically equivalent in the sense that they are not embedded in the same way in the complex projective plane. In a joint work with J.I. Cogolludo, B. Guerville and M. Marco, we prove that the fundamental groups of the complements are not isomorphic. It provides the first example of a pair of Galois-conjugate plane curves such that the fundamental groups of their complements are not isomorphic (despite the fact that they have isomorphic profinite completions).