

**An average version of the Cilleruelo's conjecture for  
families of  $S_n$ -polynomials**

Ilaria Viglino

*ETH Zürich*

For  $f \in \mathbb{Z}[X]$  an irreducible polynomial of degree  $n$ , the Cilleruelo's conjecture states

$$\log(\text{lcm}(f(1), \dots, f(M))) \sim (n-1)M \log M$$

as  $M \rightarrow +\infty$ , where  $\text{lcm}(f(1), \dots, f(M))$  is the least common multiple of  $f(1), \dots, f(M)$ . It's well-know for  $n = 1$  as a consequence of the Dirichlet's theorem for primes in arithmetic progression, and it was proved by Cilleruelo for degree-2 polynomials. Recently the conjecture was shown for a large family of polynomials of any degree by Rudnick and Zehavi. We want to investigate the case of  $S_n$ -polynomials with coefficients in the ring of algebraic integers of a fixed number field extension  $K/\mathbb{Q}$  in by considering the least common multiple of ideals of  $\mathcal{O}_K$ .