

Exposé court

98 **A generalization of Artin's primitive root conjecture among integers with few prime factors**

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Artin's conjecture states that the set of primes for which an integer a different from -1 or a perfect square is a primitive root admits an asymptotic density among all primes. In 1967 C. Hooley [1] proved this conjecture under the Generalized Riemann Hypothesis.

The notion of primitive root can be extended modulo any integer by considering the elements of the multiplicative group generating subgroups of maximal size. One can then look for which elements of a set of integers a given integer is a generalized primitive root, as did S. Li and C. Pomerance for all the integers [2]. I will discuss the set of almost primes and of rough numbers for which an integer a is a generalized primitive root, and present results similar to Artin's conjecture for primitive roots.

Bibliography

- [1] C. Hooley. On Artin's conjecture. *J. Reine Angew. Math.*, 225:209–220, 1967. doi:10.1515/crll.1967.225.209.
- [2] S. Li and C. Pomerance. On generalizing Artin's conjecture on primitive roots to composite moduli. *J. Reine Angew. Math.*, 556:205–224, 2003. doi:10.1515/crll.2003.022.