

THE CORRECTION FACTOR IN ARTIN'S PRIMITIVE ROOT CONJECTURE: CLASSICALLY AND OVER $\mathbb{F}_q[T]$

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ABSTRACT: In 1927, E. Artin proposed a conjecture for the natural density of primes p for which g is a primitive root mod p . By observing numerical deviations from Artin's originally predicted asymptotic, Derrick and Emma Lehmer (1957) identified the need for an additional correction factor; leading to a modified conjecture which was eventually proved to be correct by Hooley (1967) under the assumption of GRH. An appropriate analogue of Artin's primitive root conjecture may also be formulated over a global function field, where Bilharz provided a proof that is correct under the assumption that g is a "geometric" element. In this talk we discuss the correction factor that emerges when one removes the assumption that g is geometric; completing the proof of Artin's primitive root conjecture for arbitrary function fields over a finite field.

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