



Number Theory Seminar

The Brun-Hooley sieve

By

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Abstract: In the first two seminars in this mini seminar series on sieves we discussed the classical sieve of Eratosthenes-Legendre (applying Inclusion-Exclusion to sets of multiples of primes) and then discussed Brun's sieve (a truncation of Inclusion-Exclusion). This was strong enough to prove for example the series of reciprocals of prime twins

$$\sum_{\text{prime twins}} \frac{1}{p}$$

converges.

This is probably the highlight of Brun's sieve in this simple form, however refinements of the sieve allow more. These refinements are quite complicated, but Hooley found a simplification that delivers pretty much the same thing.

So this week we'll discuss the Brun-Hooley sieve.

Date: Friday, May 9, 2025

Time: 19:00

Place: SB-Z11