

1039-11-41

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Chan. *An extension to the Brun-Titchmarsh theorem.*

The Siegel-Walfisz theorem states that for any $B > 0$, we have $\sum_{\substack{p \leq x, \\ p \equiv d \pmod{v}}} 1 \sim x/(\varphi(v) \log(x))$ for $v \leq \log^B(x)$ and $(v, d) = 1$. This only gives an asymptotic formula for the number of primes in an arithmetic progression for quite a small modulus v compared to x . However, if we are concerned only with an upper bound, the Brun-Titchmarsh theorem says that for any $1 \leq v < x$, we have $\sum_{\substack{p \leq x, \\ p \equiv d \pmod{v}}} 1 \ll x/(\varphi(v) \log(x))$. In this talk, we will discuss an extension to the Brun-Titchmarsh theorem that concerns the number of integers with exactly s prime factors in an arithmetic progression. This is joint work with Kai Man Tsang and Tsz Ho Chan. (Received February 25, 2008)