

Extension of the Brun-Titchmarsh Inequality

The celebrated Brun-Titchmarsh inequality

$$\pi(x; k, a) = \sum_{\substack{p \leq x \\ p \equiv a \pmod{k}}} 1 \ll \frac{x}{\varphi(k) \log \frac{x}{k}},$$

which holds uniformly for $k < x$ is a useful supplement to the Siegel-Walfisz theorem and the Bombieri-Vinogradov theorem. In this talk we will discuss an extension of this result to numbers with given number of prime factors.