

ALGEBRA
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On the number of small prime power residues

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Abstract: Let p be a prime number. For each positive integer $k \geq 2$, it is widely believed that the smallest prime that is a k th power residue modulo p should be $O(p^\epsilon)$, for any $\epsilon > 0$. Elliott has proved that such a prime is at most $p^{\frac{k-1}{4}+\epsilon}$, for each $\epsilon > 0$. In this talk we will discuss the distribution of the prime k th power residues modulo p in the range $[1, p]$, with a more emphasis on the subrange $[1, p^{\frac{k-1}{4}+\epsilon}]$, for $\epsilon > 0$.

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