

Kloosterman sums and shifted character sums with multiplicative coefficients

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Abstract. In this talk, the speaker will introduce a kind of general form of Kloosterman sum

$$\sum_{\substack{n \leq N \\ (n, q) = 1}} f(n) e\left(\frac{a\bar{n}}{q}\right),$$

where $f(n)$ is a multiplicative function satisfying $|f(n)| \leq 1$, \bar{n} is the multiplicative inverse of n such that $\bar{n}n \equiv 1 \pmod{q}$, $e(x) = \exp(2\pi i x)$, $(a, q) = 1$. He will talk about the new progress on the non-trivial estimate for this kind of sum.

The speaker will also talk about the new progress on the non-trivial estimate for the shifted character sum

$$\sum_{n \leq N} f(n) \chi(n + a),$$

where $f(n)$ is a multiplicative function satisfying $|f(n)| \leq 1$, q is a prime number, χ is a non-principal Dirichlet character modulo q , $(a, q) = 1$.

The new progress mentioned above is made by the speaker jointly with Ke Gong.