

# On exponential sums with reducible polynomials

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Hooley proved that if  $f \in \mathbb{Z}[X]$  is irreducible of degree  $\geq 2$  and  $h \in \mathbb{Z}$ ,  $h \neq 0$ , then

$$\sum_{n \leq x} \sum_{\substack{r \bmod n \\ f(r) \equiv 0 \pmod{n}}} \exp\left(2i\pi \frac{hr}{n}\right) = o(x) \quad (x \rightarrow \infty).$$

By Weyl's criterion this implies that the fractions  $r/n$ , with  $0 < r < n$  and  $f(r) \equiv 0 \pmod{n}$ , are well distributed in  $]0, 1[$ .

In this talk, we consider such exponential sums with reducible polynomials of degree 2 and 3.

*This is a joint work with Greg Martin.*

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