Areas of triangles and Beck's theorem in planes over finite fields

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It is shown that any subset E of a plane over a finite field $\F_q$, of cardinality $|E|>q$ determines not less than $\frac{q-1}{2}$ distinct areas of triangles, moreover once can find such triangles sharing a common base.
It is also shown that if $|E|\geq 64q\log_2 q$, then there are more than $\frac {q}{2}$ distinct areas of triangles sharing a common vertex. The result follows from a finite field version of the Beck theorem for large subsets of $\F_q^2$ that we prove. If $|E|\geq 64q\log_2 q$, there exists a point $z\in E$, such that there are at least $\frac{q}{4}$ straight lines incident to z, each supporting the number of points of E other than z in the interval between $\frac{|E|}{2q}$ and $\frac{2|E|}{q}.$ This is proved by combining combinatorial and Fourier analytic techniques.
We also discuss higher-dimensional implications of these results in light of recent developments.

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