Maximum in-general-position set in a random subset of $\mathbb{F}_q^d$

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Let $\alpha(\mathbb{F}_q^d, p)$ be the maximum possible size of a point set in general position in a p-random subset of $\mathbb{F}_q^d$. We determine the order of magnitude of $\alpha(\mathbb{F}_q^d, p)$ up to a polylogarithmic factor by proving the balanced supersaturation conjecture of Balogh and Luo. Our result also resolves a conjecture implicitly posed by Chen, Liu, Zeng, and myself. This is joint work with Chen, Yu, and Zhang.