Jie Han and Yi Zhao* (yzhao6@gsu.edu). Hamiltonicity in randomly perturbed hypergraphs.

For integers $k \geq 3$ and $1 \leq \ell \leq k - 1$, we prove that for any $\alpha > 0$, there exist $\epsilon > 0$ and $C > 0$ such that for sufficiently large $n \in (k - \ell)\mathbb{N}$, the union of a $k$-uniform hypergraph with minimum vertex degree $\alpha n^{k-1}$ and a binomial random $k$-uniform hypergraph $\mathbb{G}^{(k)}(n, p)$ with $p \geq n^{-(k-\ell)-\epsilon}$ for $\ell \geq 2$ and $p \geq C n^{-(k-1)}$ for $\ell = 1$ on the same vertex set contains a Hamiltonian $\ell$-cycle with high probability. Our result is best possible up to the values of $\epsilon$ and $C$ and completely answers a question of Krivelevich, Kwan and Sudakov. (Received August 09, 2018)