Ronno Das* (ronnodas@gmail.com) and Benjamin O’Connor. Noncollinear points on the projective plane.

The space $F_n$ of $n$ points in the projective plane such that no 3 are collinear is an open subspace of $(\mathbb{P}^2)^n$. The cohomology of $F_n$ with the $S_n$ action by permuting coordinates is representation stable, but explicit computations are hard. We compute the cohomology of $F_6$ by counting such 6-tuples over the finite field $\mathbb{F}_q$ (with a ‘twist’) and using the Grothendieck–Leftschetz trace formula. Unfortunately $n > 6$ is still hard. (Received January 31, 2020)