1133-14-331 **Łucja Farnik**, **Francesco Galuppi**, **Luca Sodomaco** and **Bill Trok***
(`william.trok@uky.edu`). *Combinatorics and Unexpected Curves in the Projective Plane.* Preliminary report.

Let $I(Z)$ be the ideal of a collection of points $Z$ contained in $\mathbb{P}^2$, the projective plane. We say that $Z$ has an unexpected curve of degree $d$ if for a general point $Q \in \mathbb{P}^2$, and some integer $m$, the dimension of the ideal $I(Z) \cap I(Q)^m$ in degree $d$ is not the expected dimension, that is $\dim[I(Z) \cap I(Q)^m]_d > \max\{0, \dim[I(Z)]_d - \binom{m+1}{2}\}$. We discuss some ongoing work involving the structure of the collections of points $Z$ which admit unexpected curves. We'll mention why we expect high amounts of symmetry of the points in $Z$, with special attention paid to the case where $Z$ consists of 9 points. Additionally, we'll look at a new technique for proving a given configuration admits an unexpected curve. (Received July 31, 2017)