ADAM VAN TUYL, Lakehead University

The minimum distance of linear codes and fat points

Let $A(Z)$ be the generating matrix of some linear code with parameters $[s, n+1, d]$ over an arbitrary field $\mathbb{K}$. I will describe how to associate to $A(Z)$ a set of fat points in $Z \subseteq \mathbb{P}^n$. I will then show that d, the minimal distance of the code, is bounded below by specific shifts in the graded minimal free resolution of I_Z, the defining ideal of Z. We give better bounds in the case that the support of Z is a complete intersection. This is joint work with Ştefan O. Tohăneanu (Western).