DAVID WEHLAU, Royal Military College
Planes, Division Sequences and ZZ-topes

We consider the algebraic closure F of the field of order p as an infinite dimensional vector space over the prime field. A natural problem in representation theory leads to the question of describing the two dimensional subspaces of F. In particular, we wish to describe the orbits of these planes under the natural action of the non-zero scalars F^*. The solution to this problem leads to an infinite sequence of polynomials for each prime p. These polynomials have a number of remarkable properties. Studying these polynomials reveals deep connections with number theory and combinatorics.

Joint work with H.E.A. Campbell, University of New Brunswick