Irreducible components of Hilbert schemes and application to secant varieties

Maciej Gałązka, Daegu-Gyeongbuk Institute of Science and Technology

We recall the connection of the Gorenstein loci in the Hilbert scheme of points on a projective variety X with the cactus varieties of X in some embedding. We give an analogous description of cactus varieties of pencils (which correspond to simultaneous rank). We conclude by showing some examples of cactus varieties of pencils which are equal to their corresponding secant varieties. This is a complementary talk to Klemen Šivic's presentation, and is based on joint work with Hanieh Keneshlou and Klemen Šivic.