Speaker: Claudia Polini
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Friday, April 10, 2015
4:00 PM
129 Hayes-Healy Hall

Title: Syzygies and Singularities of Rational Curves

Abstract:

We study rational curves in projective space, most notably rational plane curves, through the syzygy matrix of the forms parametrizing them. A rational plane curve C of degree d can be parametrized by three forms f_1,f_2,f_3 of degree d in the polynomial ring k[x,y], and the syzygy matrix F of these forms is easier to handle and often reveals more information than the implicit equation of C. Our goals are to read information about the singularities of C solely from the matrix F, to set up a correspondence between the types of singularities on the one hand and the shapes of the syzygy matrices on the other hand, and to use this correspondence to stratify the space of rational plane curves of a given degree.