1053-11-3 **Dino J Lorenzini*** (lorenzini@math.uga.edu), Department of Mathematics, University of Georgia, Athens, GA 30602. *The index of an algebraic variety.*

Let K be a field and let X/K be an algebraic variety. The index of X/K is the greatest common divisor of the degrees over K of the points of X. In a simple example such as when X is a plane curve given by an equation f(x,y)=0 with f(x,y) in K[x,y], the index is the greatest common divisor of the integers [K(a,b):K], where f(a,b)=0, and a,b are in the algebraic closure of K.

After surveying basic facts on the index, we will explain how the index of X/K can be computed in a completely different way, using multiplicities of primary ideals in a singular local ring associated with the variety X. This is joint work with O. Gabber and Q. Liu. (Received September 08, 2009)