Stony Brook University
The Graduate School

Doctoral Defense Announcement

Abstract

Topics in Algebraic Cycles

By

Luis Edoardo Lopez

A generalization of the projective gauss map is presented. Some classical results in algebraic geometry are reinterpreted in terms of these higher degree gauss maps. A formula for the degree and dimension of the image variety is provided.

Two different structures of H-space on the infinite projective space are proved to be homotopic. One structure has the advantage of having an explicit description of the homotopy inverse.

A question raised by Boyer, Lawson, Lima-Filho, Mann, and Michelson in their 1995 paper is studied. This question concerns the existence of a product structure in the space of algebraic cycles which extends the tensor product on linear cycles.

It is proved that no such extension exists if we require the product to be compatible with the monoid structure in the space of algebraic cycles. An explicit topological obstruction is found.

Date: May 10, 2007 **Program**: Mathematics
Time: 1:00 PM **Dissertation Advisor**: H. Blaine Lawson, Jr.
Place: Seminar room 5th floor. Mathematics Department