

There once lived a man who learned how to slay dragons and gave all he possessed to mastering the art. After three years he was fully prepared but, alas, he found no opportunity to practice his skills. — Dschuang Dsi.

As a result he began to teach how to slay dragons. — R. Thom.

The Trivial Notions Seminar Proudly Announces

Complex varieties are really real!

A talk by
Chen-Yu Chi

Abstract

The Lefschetz hyperplane section theorems describe how the topology of a projective manifold X^n is related to the topology of a (generic) hyperplane section X_0 . The first Lefschetz theorem says that the map $H_i(X_0, \mathbb{Z}) \rightarrow H_i(X, \mathbb{Z})$ is bijective if $i < n - 1$ and is surjective if $i = n - 1$. (A proof coming from R. Thom's idea of using Morse theory was given by the speaker in his previous trivial notion talk "Complex Varieties are so real".)

How to describe the kernel of the map $H_{n-1}(X_0, \mathbb{Z}) \rightarrow H_{n-1}(X, \mathbb{Z})$ geometrically? This is exactly the content of the second Lefschetz theorem, which identifies the kernel of this map with the group of vanishing cycles on X_0 . In this talk, we will give a proof of this theorem using Morse theory (also inspired by R. Thom).

Friday, October 20th, 2006 at 2:00 pm
Science Center 507