"We have to understand what's on this napkin!"—R. MacPherson to M. Goresky

The Trivial Notions Seminar
Proudly Announces

Intersection Homology: Saving Poincaré Duality

A talk by

Aaron Silberstein

Abstract

Singular homology and cohomology groups are the common currency of geometry — relatively easy to compute and rich in intrinsic structure, they are not merely invariants of geometric spaces, but often the invariants by which other invariants are measured (e.g., characteristic classes). Despite the fact that they are homotopy invariants, Poincaré duality and the Lefschetz fixed point theorem allow us to compute tangible geometric (and not merely topological) quantities for topological manifolds. However, trying to glean this information from the singular homology of something that's not a manifold — for instance, a singular complex variety — is like trying to use WD-40 to fix your computer. We will describe intersection homology and cohomology, developed by Goresky and MacPherson in the 1970s, which provides a salvage of these classical geometric applications for a class of spaces which includes singular complex varieties, and indicate a smattering of applications.

Thursday, October 9^{th} at 2:07 pm
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