



GEOMETRY, TOPOLOGY, AND PHYSICS SEMINAR

Elliptic cohomology, Witten genus, and applications to physics

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Friday, October 19, 2007, 4:00 p.m.
Room 6635 South Hall

Abstract: Elliptic cohomology is a field at the intersection of number theory, algebraic geometry and algebraic topology. Its definition is very technical and highly homotopy theoretic. While its geometric definition is still an open question, elliptic cohomology exhibits striking formal similarities to string theory, and it is strongly expected that a geometric interpretation will come from there.

To illustrate the interaction between the two fields, I will speak about my work on orbifold genera and product formulas: After a very informal introduction to elliptic cohomology, I will discuss string theory on orbifolds and explain how a formula by Dijkgraaf, Moore, Verlinde and Verlinde on the orbifold elliptic genus of symmetric powers of a manifold motivated my work in elliptic cohomology. I will proceed to explain why elliptic cohomology provides a good framework for the study of orbifold genera. Time permitting, I will also sketch conjectural connections to generalized Moonshine and non-linear sigma models.

Information about future meetings of this seminar can be found at
<http://www.math.ucsb.edu/~malmendier/GTPseminar/>