Noncommutative techniques in topology

Erik van Erp

Dartmouth

Thursday, January 6, 2011

007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

I discuss how the methods of noncommutative geometry can be applied to study questions in "classical" topology or geometry. I will focus on the solution of a specific topological problem (an index problem) to illustrate the interplay between noncommutative algebras and topological spaces. While the final solution of the problem can be stated in purely topological terms, all the steps in the proof rely crucially on the use of noncommutative algebras. Specifically, there exists a cohomology theory (K-theory) that applies to both categories. This provides a powerful vehicle for going back and forth between the two.

This talk should be accessible to graduate students.   1293908831