Thesis Defense

A Metric for Homotopy Types

Nicholas Scoville

Wednesday May 26 2010 - 3 pm - Haldeman 041

Abstract

A metric structure on a set provides a way to talk about a distance between any two elements of that set. What is a metric structure on the collection of CW complexes? What does it mean for CW complexes to be "close to" or "far apart from" one another? We will consider answers to these and other similar questions. This will be done by using the numerical invariants of cone-length and Lusternik-Schnirelmann category as a framework and considering other topological invariants to determine the complexity of spaces. We then apply this theory to establish which values can be realized as a distance between CW complexes and finish by stating some open problems.