

Meeting: 998, Houston, Texas, SS 11A, Special Session on Algebraic Topology

998-57-384 **Ralph L Cohen*** (ralph@math.stanford.edu), Dept. of Mathematics, Stanford University,
Stanford, CA 94305. *Cohomology operations via Morse theory*. Preliminary report.

I will describe classical cohomology operations (cup product, Steenrod squares) and characteristic classes of manifolds using Morse theory. More generally, a topological quantum field theory will be constructed using moduli spaces of graph flows in a manifold. Formal analogies with Gromov-Witten theory will be made. In particular a virtual fundamental class will be constructed using homotopy theoretic, rather than algebraic geometric techniques. This is joint work with Paul Norbury. (Received March 02, 2004)