"They commute, but they only commute if you do them in a certain order."

— Jacob Lurie.

The Trivial Notions Seminar

Proudly Announces

Homotopy associativity and commutativity

A talk by

Eric Wofsey

Abstract

In topology, you often encounter spaces with multiplication maps that are only associative or commutative up to homotopy. For example, the group structure on $\pi_1(X)$ comes from the fact that the space ΩX of loops on X is a group up to homotopy. The commutativity of higher homotopy groups comes from commutativity up to homotopy of the multiplication on iterated loopspaces $\Omega^n X$ for $n > 1$. We'll explore what it should mean for a binary operation of a space to be associative or commutative "up to coherent homotopy" and say a little about when you can replace it with an operation which is actually associative or commutative.

Thursday, October 15^{th} at 2:07 pm

Science Center 507