## **ALGEBRA SEMINAR**

## $A_\infty$ -algebras ex nihilo

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ABSTRACT: Some interesting algebraic structures found in topology, quantum physics, and probability, can be described by an appealing two step process. Step 1 is an algebraic preliminary that amounts to building structures out of nothing. This production of structure ex nihilo seems trivial from one perspective (homotopy theory) but from another perspective, it has interesting connections with probability theory. Step 2 involves a slight modification of Step 1 and "turns on h-bar." This produces some very intricate homotopy algebraic structures. I'll explain these two steps and give a couple of examples.

> Monday, February 6, 2012 1:40 – 2:30 pm Room 617, Wachman Hall Department of Mathematics