"In these days the angel of topology and the devil of abstract algebra fight for the soul of every individual discipline of mathematics."

— Hermann Weyl

"Algebra is the offer made by the devil to the mathematician. The devil says: 'I will give you this powerful machine, it will answer any question you like. All you need to do is give me your soul: give up geometry and you will have this marvelous machine.' "

— Michael Atiyah

The Trivial Notions Seminar
Proudly Announces

Crystals, Young Tableaux, Littelmann Paths, and Representation Theory

A talk by

George Boxer

Abstract

A Kashiwara crystal is a combinatorial structure that can be associated to a finite dimensional representation of a complex semisimple Lie algebra. There are combinatorial operations on crystals that correspond to operations on representations, such as taking tensor products. Crystals were originally discovered by Kashiwara and Lusztig within the theory of quantum groups. In this talk I will give elementary combinatorial definitions of crystals and the basic operations on them. Then I will explain the connection between crystals of type A_n and Young Tableaux. Time permitting, I will introduce Littelmann's path model which gives a uniform combinatorial description of the crystals of all finite dimensional representations of all complex semisimple Lie algebras, as well as a generalization of the Littlewood-Richardson rule to all Cartan types.

Thursday February 16$^{\text{th}}$, at 2:00 pm
Science Center 310