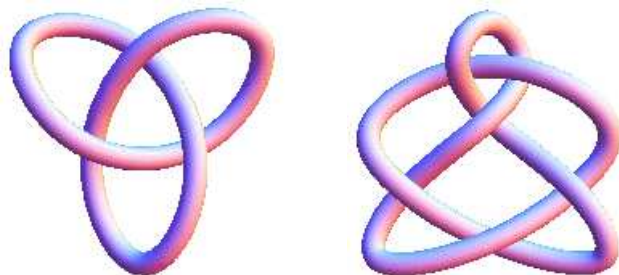

SPECIAL MATH CLUB LECTURE

1:40 PM, 18 October 2007, 232 Lockett Hall

Knot Colorings — From Grade School to Grad School (and Back?) in One Hour



Professor John Etnyre
School of Mathematics
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Abstract: Knots in strings and ropes have fascinated people for millennia but have only been a subject of serious mathematical inquiry for the last century or so. Their study is now a fundamental and central part of low-dimensional topology and string theory indicates they might, in some subtle and deep way, be related to how the universe works! After a brief introduction to knots as mathematical objects, I will discuss one of the simplest ways to study them, that is by coloring them. Yes, that's right, by pulling out your good old crayons and coloring (but of course we will need a few rules about how to color to make this useful). Once we see that this simple idea can be surprisingly powerful, I will discuss how it is in fact related to the fairly sophisticated notion of representations of the fundamental group of the knot complement. (I will define and discuss all these notions.) This is a great example of the common theme in low dimensional topology that one can frequently take fairly sophisticated things (like representations, group actions, holomorphic curves...) and turn them into a fairly simple (combinatorial) thing (like colorings, polynomials, convex polygons...). This interaction between the sophisticated and the simple is one of the beautiful and appealing things about low dimensional topology.

All undergrads and first year grads invited. Refreshments will be provided.
