MATH and PIZZA

Tangents to Four Unit Spheres:
An Introduction to Enumerative Algebraic Geometry

Speaker

David Cox

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Sponsored by

Department of Mathematics **University of Kentucky**

All students with an interest in Mathematics are welcome to attend !!

Date: Thursday, March 5, 2009

Time: 4:00pm - 5:00pm

Room: 114, Classroom Building

Abstract: Given four spheres of radius one in three-dimensional space, how many lines can be simultaneously tangent to all four? The answer is easy to state, but understanding where it comes from requires some interesting mathematics, including Bezout's Theorem and the projective plane.

This lecture will explain how these tools apply to the four sphere problem and put this problem into a larger context by introducing other counting problems that arise from algebraic equations (this is "enumerative algebraic geometry"). I will give numerous examples, including some that arise in string theory in mathematical physics.

For most of the lecture, knowledge of first semester calculus will be sufficient. In some places, Professor Cox will use dot product from third semester calculus.

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