BI-CO MATHEMATICS COLLOQUIUM

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"Unirational Parameterizations of Cubic Surfaces "

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Talk at 4:00 – H109
Tea at 3:30 – KINSC Math Lounge, H208

Abstract:

A cubic surface is the zero set of a degree three homogeneous polynomial in four variables. For example, the Fermat cubic surface is defined by the vanishing of the equation x^3+y^3+z^3= w^3. It has been known for more than 100 years that for any smooth cubic surface X there is a one-to-one map between projective three space and X when the surface is defined over an algebraically closed field like the complex numbers. This is not true over non-closed fields like the real numbers. In 2002 Kollár proved that over any field there is a finite-to-one map from projective three space to X as long as there is at least one solution to the defining polynomial equation over that field. In this talk we will address the degree of that finite-to-one map for surfaces defined over finite fields.

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