



GEOMETRY, TOPOLOGY, AND PHYSICS SEMINAR

Kummer surfaces from Seiberg-Witten curves

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Friday, October 9th, 2009, 4:00 p.m.
Room 6635 South Hall

Abstract: Jacobian elliptic surfaces are elliptic surfaces with sections. They play a key role in gauge theory as well as in string theory. In gauge theory, the Seiberg-Witten curve of $SU(2)$ gauge theory arises as a pencil generated by two cubics in the plane forming a rational elliptic surface. In F-theory, K3 surfaces constructed as elliptic surfaces with sections are also of special importance.

In my talk, I will start with the Weierstrass normal form of the Seiberg-Witten curve for pure $SU(2)$ gauge theory. By carrying out a base transformation, one obtains a 3-parameter family of elliptically fibered K3 surfaces. The gauge theoretic relation between the Seiberg-Witten curves with $N_f = 2$ and $N_f = 0$ hypermultiplets in turn defines a Shioda-Inose structure on each K3 surface in the family with quotient birational to a Kummer surface of the Jacobian of a genus-two curve.