



GEOMETRY, TOPOLOGY, AND PHYSICS SEMINAR

Elliptic Calabi-Yau torsors

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UCSBFriday, January 29, 2016, 4:00 p.m.
Room 6635 South Hall

Abstract: Every elliptic fibration $\pi : X \rightarrow B$ with a rational section determines an elliptic curve E defined over the function field $K = K(B)$ of the base; if two elliptic fibrations determine the same elliptic curve, then they are birationally equivalent. As a group-scheme over K , E may admit "torsors," i.e., projective curves C over K with a transitive action $E \times C \rightarrow C$ having trivial stabilizers. The question we will address is: if X is an elliptically fibered Calabi-Yau variety, and C/K is a torsor for the associated elliptic curve E/K , when does C/K have a birational model which is itself a Calabi-Yau variety? The question is an important one to answer for application to F-theory.

I will discuss various partial results concerning this question, some old and some new. I will also briefly describe the application to F-theory.

This seminar is part of the NSF/UCSB 'Research Training Group' in Topology and Geometry. Information about future meetings can be found at <http://www.math.ucsb.edu/~drm/GTPseminar/>