THE UNIVERSITY   **OF HONG KONG**

Institute of Mathematical Research
Department of Mathematics

Geometry Seminar

Bounding torsion in families of abelian varieties

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Abstract

A celebrated theorem of Mazur asserts that only finitely many groups occur as the torsion part of the group of rational points of an elliptic curve defined over *Q*. It is conjectured that the same is true for abelian varieties over a number field *K*, though very little progress has been made in proving it. The natural geometric analog, known as the geometric torsion conjecture, asks for a bound on the torsion sections of a family of abelian varieties over a complex curve, and can be interpreted as the nonexistence of low genus curves in congruence towers of Siegel modular varieties. We will discuss a general method for bounding the genus of curves in locally symmetric varieties using hyperbolic geometry and apply it to some special cases of the torsion conjecture as well as some related problems. This is joint work with J. Tsimerman.

Date: February 16, 2015 (Tuesday)

Time: 3:10 – 4:10pm

Place: Room 210, Run Run Shaw Bldg., HKU

All are welcome