



EXCEPTIONAL SPLITTING OF REDUCTIONS OF ABELIAN SURFACES WITH REAL MULTIPLICATION

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Time: 14:30-15:30, Friday, July 13, 2018

Venue: Room 2201, East Main Guanghua Tower, Handan Campus

Abstract: Zywin showed that after passing to a suitable field extension, every abelian surface A with real multiplication over some number field has geometrically simple reduction modulo $\frac{1}{p}$ for a density one set of primes $\frac{1}{p}$. One may ask whether its complement, the density zero set of primes $\frac{1}{p}$ such that the reduction of A modulo $\frac{1}{p}$ is not geometrically simple, is infinite. Such question is analogous to the study of exceptional mod $\frac{1}{p}$ isogeny between two elliptic curves in the recent work of Charles. In this talk, I will show that abelian surfaces over number fields with real multiplication have infinitely many non-geometrically-simple reductions. This is joint work with Ananth Shankar.