

Jean-Morlet Chair - Conference
Arithmetic Statistics - Statistiques arithmétiques

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Title: *On a local-global principle for quadratic twists of abelian varieties*

Abstract: Let A and A' be abelian varieties defined over a number field k . In the talk I will consider the following question: Is it true that A and A' are quadratic twists of one another if and only if they are quadratic twists modulo p for almost every prime p of k ? Serre and Ramakrishnan have given a positive answer in the case of elliptic curves and a result of Rajan implies the validity of the principle when the endomorphism ring of A (and hence also that of A') over an algebraic closure of \mathbb{Q} is just \mathbb{Z} . For not necessarily simple abelian varieties, I will show that the answer is affirmative up to dimension 3, but that it becomes negative in dimension 4. Time permitting, I will present ideas obtained in collaboration with E. Ambrosi that lead to more general results.