



Du  
**02**  
NOV.  
2016

14h00  
-  
15h30

**RÉGA**

**Victoria Cantoral-Farfán "Torsion for abelian varieties of type III"**

IHP  
Salle 314

INSCRIPTION

Victoria Cantoral-Farfán (Université Paris VII)  
Torsion for abelian varieties of type III

Mordell-Weil's theorem states that for an abelian variety defined over a number field  $K$  the group of  $K$ -rational points is finitely generated. More precisely it can be seen as a product of a free group by a finite subgroup of torsion points over  $K$ . One can wonder if we can get a uniform bound for the order of the subgroup of torsion points over a finite extension  $L$  over  $K$ , depending on the degree of this extension and the dimension of the abelian variety, when the abelian variety varies in a certain class. This question is commonly known as the "Strong Uniform Boundedness Conjecture". For elliptic curves defined over a number field  $K$ , Merel proved in 1994 that we can indeed get a uniform bound using methods developed by Mazur and Kamienny. A complementary question would be to ask if we can get a bound for the order of the subgroup of torsion points over a finite extension  $L$  over  $K$ , depending on the degree of this extension and the dimension of the abelian variety, when  $L$  varies over all the finite extensions of  $K$  and the abelian variety is fixed. This question had been already answered by Hindry and Ratazzi for certain classes of abelian variety. In this talk we focus our attention on this last question and extend the previous results. We are going to present some new results on this direction concerning the class of abelian variety of type III in Albert's classification and "fully of Lefschetz type" (i.e. whose Mumford-Tate group is the group of symplectic or orthogonal similitudes commuting with endomorphisms and which satisfy the Mumford-Tate conjecture).



## **INSTITUT HENRI POINCARÉ - UAR839**

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