Journée Gretchen & Barry Mazur

Rapport sur les contributions

https://indico.math.cnrs.fr/e/4697

ID de Contribution: **1** Type: **Non spécifié**

Motivic Fundamental Group of CM Elliptic Curves and Geometry of Bianchi Hyperbolic Threefolds

vendredi 5 juillet 2019 10:00 (1 heure)

Let N be an ideal in the ring O of gaussian integers. We consider the action of the motivic Galois group on the motivic fundamental group of the elliptic curve with CM by the ring O, punctured at the N-torsion points, and relate it to the geometry of the Bianchi threefold obtained by taking the quotient of the hyperbolic space by a congruence subgroup of GL(2,O) determined by the ideal N.

Orateur: Prof. GONCHAROV, Alexander (Yale University & IHES)

ID de Contribution: **2** Type: **Non spécifié**

Purity for Flat Cohomology

vendredi 5 juillet 2019 11:30 (1 heure)

The absolute cohomological purity conjecture of Grothendieck proved by Gabber ensures that on regular schemes étale cohomology classes of fixed cohomological degree extend uniquely over closed subschemes of large codimension. I will discuss the corresponding phenomenon for flat cohomology. The talk is based on joint work with Peter Scholze.

Orateur: Prof. ČESNAVIČIUS, Kęstutis (Université Paris-Sud)

ID de Contribution: **3** Type: **Non spécifié**

Application of Functional Transcendence to Counting Rational Points on Curves

vendredi 5 juillet 2019 14:00 (1 heure)

With Philipp Habegger we recently proved a height inequality, using which one can bound the number of rational points on 1-parameter families of curves in terms of the genus, the degree of the number field and the Mordell-Weil rank (but no dependence on the Faltings height). This gives an affirmative answer to a conjecture of Mazur for pencils of curves. In this talk I will give a blueprint to generalize this method to an arbitrary family of curves. In particular I will focus on:
(1) how establishing a criterion for the Betti map to be immersive leads to the desired bound;
(2) how to apply mixed Ax-Schanuel to establish such a criterion.
This is work in progress, partly joint with Vesselin Dimitrov and Philipp Habegger.

Orateur: Prof. GAO, Ziyang (IMJ-PRG)

ID de Contribution: **4** Type: **Non spécifié**

Sur le programme de Langlands p-adique

vendredi 5 juillet 2019 15:15 (1 heure)

Le programme de Langlands p-adique a pour origine les travaux de Serre et de Hida sur les familles p-adiques de formes modulaires et les représentations galoisiennes qui leur sont associées. Mazur, en collaboration avec Gouvéa et avec Coleman, a joué un grand rôle dans la maturation de ce programme, mais celui-ci n'a toujours pas de forme vraiment définitive. Je présenterai des travaux récents en lien avec ce programme.

Orateur: Prof. COLMEZ, Pierre (IMJ-PRG)

ID de Contribution: **5** Type: **Non spécifié**

New Rational Points of Algebraic Curves over Extension Fields

vendredi 5 juillet 2019 16:45 (1 heure)

For L/K an extension of fields and V an algebraic variety over K say that V is Diophantine Stable for the extension L/K if V(L) = V(K). That is, if 'V acquires no new rational points'when one makes the field extension from K to L. I will describe some recent results joint with Karl Rubin regarding Diophantine Stability and give a survey of related recent statistics, heuristics, and conjectures.

Orateur: Prof. MAZUR, Barry (Harvard University)