

Abstract: Hokuriku Number Theory Workshop 2024

2024/12/06(Fri), at Kanazawa University

Takeshi Saito, Log monogenic extensions and ramification theory

In classical ramification theory, many theorems are proved under the assumption that the extension of residue fields is separable. Log monogenic extensions give an optimal class of extensions for which classical theorems are extended. I discuss the definition, various characterizations and classical theorems including the Hasse-Arf theorem.

Antonio Cauchi, On the arithmetic of motives with Galois group of type G_2

I will explain how to construct an Euler system for the Galois representation attached to cusp forms on the exceptional group G_2 . This construction relies on the cohomological properties of an exceptional theta correspondence together with the use of certain Eisenstein cohomology classes for $GSp(4)$ introduced by Faltings and recently studied by Sangiovanni Vincentelli and Skinner. This is joint work with Rodrigues Jacinto and Shah.

Veronika Ertl, Conjectures on L -functions for Varieties Over Function Fields and Their Relations

I will report on joint work with Timo Keller and Yanshuai Qin. We consider versions for smooth varieties X over finitely generated fields K in positive characteristic p of several conjectures that can be traced back to Tate, and study their interdependence. In particular, let A/K be an abelian variety, I will explain how to relate the BSD-rank conjecture for A to the finiteness of the p -primary part of the Tate-Shafarevich group of A using p -adic methods.

Tomoyuki Abe, Geometricity of overconvergent F -isocrystals over a curve

Overconvergent isocrystals are coefficient objects of p -adic cohomology theory over a field of positive characteristic. It was vaguely conjectured by Deligne, and rigorously formulated by Crew, that overconvergent isocrystals which possess Frobenius structure behave as if they “come from geometry”. I showed, some time ago, this conjecture for the case of curves, by showing Langlands correspondence for such objects. I wish to talk about this “old theorem” of mine and pose

some questions relating the Frobenius structure of overconvergent isocrystals. This talk is aimed at non-experts of p -adic cohomology theory, and I assume no prerequisites in p -adic cohomology theory.

Organizers

Iwao Kimura (University of Toyama), Yukako Kezuka (Kanazawa University),
Shinichi Kobayashi (Kyushu University)