

Séminaire de théorie des nombres

Le 10 octobre 2022 à 14h (Jussieu)

On reciprocity sheaves and a motivic analogue of the Hasse-Arf theorem

Exposé de Hiroyasu Miyazaki
(NTT-IFM)

Résumé : Kahn-Saito-Yamazaki generalized the theory of Voevodsky's \mathbb{A}^1 -homotopy invariant sheaf to the theory of reciprocity sheaves, in order to capture non- \mathbb{A}^1 -homotopy invariant phenomena, including wild ramifications. The category of reciprocity sheaves includes many important class of sheaves in arithmetic geometry, e.g., all commutative algebraic groups, the sheaf of Kähler differentials, the ring of (big) Witt vectors, etc. In this talk, I will explain that reciprocity sheaves admit filtration indexed by \mathbb{Q} -divisors, which is analogous to the upper ramification filtration of the Galois groups. In particular, we will formulate a (conjectural) sheaf-theoretic analogue of the Hasse-Arf theorem in number theory, and prove it in certain cases. As an application, I will give a motivic presentation of the algebraic structures of the big Witt rings, including Frobenius. This talk is based on a joint work with Junnosuke Koizumi.