Séminaire de théorie des nombres

Le 25 septembre 2023 à 14h (Jussieu)

On the universal groups of harmonic analysis and arithmetic geometry

Exposé de James Arthur
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Résumé : This pair of lectures follows the one hour talk that was recorded last week at the Luminy conference in honour of Jean-Pierre Labesse. I hope to be able to expand here on the various topics that were introduced there, and to say more about some of their consequences. At the heart of the theory is how fundamental relations between harmonic analysis (automorphic forms) and arithmetic geometry (motives) can be made explicit in a conjectural construction of the automorphic and motivic Galois groups. We shall introduce these groups, and describe some of their basic properties. We shall then describe how they might extend to two broader theories, those of mixed motives and exponential motives. The groups also seem to have implications for the beyond endoscopic comparison of trace formulas, an undeveloped theory that might serve as a foundation for the future proofs, even though not much can be said at present.