Séminaire de théorie des nombres

Le 12 mai 2025 à 14h (PRG)

p-adic Theta-functions and rigid meromorphic cocycles

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Résumé : A celebrated result from CM-theory is the ability to generate Hilbert class fields of imaginary quadratic fields by adjoining to them singular moduli, which are the CM-values of the classical j-function. In addition, the norms of these singular moduli exhibit rather surprising factorisation formulae, which were proved in the 1980s by Gross and Zagier and would continue to inspire the Gross-Kohnen-Zagier theorem. For real quadratic fields (RM-theory), Darmon and Vonk recently constructed a p-adic analogue of the j-function ; certain rigid meromorphic cocycles. Their properties strongly mimic those of the differences between two singular moduli, both in terms of the fields of definition of their special values, and the factorisations of their norms. In this talk, we will focus on the CM-values of p-adic theta-functions, which generalise the norms of the differences of singular moduli as studied by Gross and Zagier to other genus zero Shimura curves. We explain how this work fits within the framework of rigid meromorphic cocycles and how it might lead to a more unified p-adic treatment of RM-theory and CM-theory.