Séminaire de théorie des nombres

Le 30 septembre 2024 à 14h (PRG)

Prismatic F-crystals and Wach modules

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Résumé : For an absolutely unramified extension $K/\mathbb{Q}_p$ with perfect residue field, by the works of Fontaine, Colmez, Wach and Berger, it is well known that the category of Wach modules over a certain integral period ring is equivalent to the category of lattices inside crystalline representations of G_K (the absolute Galois group of K). Moreover, by the recent works of Bhatt and Scholze, we also know that lattices inside crystalline representations of G_K are equivalent to the category of prismatic F-crystals on the absolute prismatic site of O_K, the ring of integers of K. The goal of this talk is to present a direct construction of the categorical equivalence between Wach modules and prismatic F-crystals over the absolute prismatic site of O_K. If time permits, we will also mention a natural generalisation of these results to the case of a "small" base ring.