Igusa Stacks III

mardi 28 octobre 2025 15:15 (1 heure)

Igusa stacks are a new tool to study the cohomology of Shimura varieties with both characteristic 0 and torsion coefficients. Let (G,X) be a Shimura datum of Hodge type. The associated Shimura variety with infinite level at p, considered as a diamond over a p-adic field, can be expressed as a fiber product of an Igusa stack with a purely local object, the diamond associated to a flag variety, over the moduli stack Bun_G of G-bundles over the Fargues-Fontaine curve. This Cartesian diagram, called the Igusa stack diagram, allows us to use techniques from the categorical local Langlands program to study the cohomology of Shimura varieties.

In the first lecture, we will discuss the Igusa stack diagram, constructed in various levels of generality by Zhang, Daniels-van Hoften-Kim-Zhang, and Kim. In the next two lectures, we will discuss applications of the Igusa stack diagram to the cohomology of Shimura varieties, specifically to results such as torsion-vanishing, Eichler-Shimura relations, and Ihara's lemma. These are due to a number of researchers, including Koshikawa, Hamann-Lee, Daniels-van-Hoften-Kim-Zhang, Yang-Zhu and Yang. In the last lecture, we will discuss the relative intersection cohomology of the Igusa stack, which is joint work in progress of the two mini-course speakers with Linus Hamann.

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