

Séminaire de théorie des nombres

Le 8 février 2016 à 14h (PRG)

On singular fibers of the family of arithmetic hypergeometric Calabi-Yau 3-folds

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Résumé : We construct a semistable family of arithmetic hypergeometric Calabi-Yau 3-folds over the affine line over $\mathbb{Z}[1/2]$, whose periods are given by the generalized hypergeometric function ${}_4F_3(1/2, 1/2, 1/2, 1/2; 1, 1, 1; \lambda)$. In the semistable fiber at $\lambda = 1$ one finds a rigid Calabi-Yau 3-fold as an irreducible component.

We explicitly study the modularity of the rigid Calabi-Yau 3-fold and algebraic cycles on the fiber.