Oberseminar Institut für Algebraische Geometrie

Adam Logan

(Tutte Institute for Mathematics and Computing)

A conjectural uniform construction of many rigid Calabi-Yau threefolds.

Given a rational Hecke eigenform f of weight 2, Eichler-Shimura theory gives a construction of an elliptic curve over $\mathbb{Q}$ whose associated modular form is f. Mazur, van Straten, and others have asked whether there is an analogous construction for Hecke eigenforms f of weight $k > 2$ that produces a variety for which the Galois representation on its etale H^{k-1} (modulo classes of cycles if k is odd) is that of f. In weight 3 this is understood by work of Elkies and Schütt, but in higher weight it remains mysterious, despite many examples in weight 4. In this talk I will present a new construction based on families of K3 surfaces of Picard number 19 that recovers many existing examples in weight 4 and produces almost 20 new ones.

Donnerstag, 20.10.2022

16:30-17:30, online

Leibniz Universität Hannover

Alle Interessierten sind herzlich eingeladen.