

Department of Mathematics, BGU

AGNT

On Tuesday, January ,10 2023

At 15:00 – 16:00

In 101-

Adam Logan (McGill)

will talk about

A conjectural uniform construction of many rigid Calabi-Yau threefolds

Abstract: Given a rational Hecke eigenform f of weight $2k$ 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 étale H^k (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.

Please Note the Unusual Time!