

Calabi–Yau threefolds of Borcea–Voisin type and Arithmetic Mirror Symmetry

Yui, Noriko, Queen’s University

We consider Calabi–Yau threefolds of Borcea–Voisin type defined over \mathbf{Q} . Such a Calabi–Yau threefold is constructed as the quotient of the product of a K3 surface and an elliptic curve by a specific involution. For appropriate choices of K3 surfaces, we can establish the modularity/automorphy of the L-series of the Calabi–Yau motive. We also consider mirror pairs of Calabi–Yau threefolds of Borcea–Voisin type, and discuss arithmetic mirror symmetry and its variants.