

# INSALATE DI MATEMATICA

presents

28/02/2024

**SIMONE BILLI**

Università degli Studi di Genova

*Integral lattices and cubic fourfolds with  
prime-order non-symplectic automorphisms*



## Abstract:

Much information about the geometry of a cubic fourfold  $Y$  is encoded in the Hodge decomposition of cohomology group  $H^4(Y, \mathbb{C})$ . The integral cohomology  $H^4(Y, \mathbb{Z})$  endowed with the Poincaré pairing forms an integral lattice, the Torelli theorem assert that the sublattice of algebraic classes uniquely determines the cubic. In a work progress with A. Grossi, we compute the algebraic lattice of a general cubic fourfold with a non-symplectic automorphism of order 3. This allows us to formulate geometrical considerations and deduce the rationality of the cubic in some cases

## Keywords:

Integral lattices · cubic fourfold · automorphisms

Dipartimento di Matematica e  
Applicazioni

Università degli Studi di Milano-Bicocca

U5-3014

04:30 pm (CET)



"Obvious" is the most dangerous word in mathematics.  
(Eric Temple Bell)