ARITHMETIC ALGEBRAIC GEOMETRY - ONLINE SEMINAR

(organizers: Grzegorz Banaszak, UAM Poznań, Piotr Krasoń, US Szczecin)

July 8, 2021 06:00 PM Warsaw

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Sato-Tate groups of abelian threefolds: adventures in SU(3)

Abstract: The Sato-Tate group of an abelian variety over a number field is a compact Lie group that controls the behavior "on average" of the normalized Euler factors of the L-function. In a 2012 paper with Francesc Fite, Victor Rotger, and Andrew Sutherland, we classified the Sato-Tate groups of abelian surfaces (there are 52 of them). We describe a similar result for abelian threefolds (joint with Fite and Sutherland) with a focus on the richest aspect of this result, the classification of Sato-Tate groups of abelian threefolds which are geometrically isogenous to the cube of a CM elliptic curve. This involves a careful look at the classification of finite 3x3 matrix groups due to Blichfeldt-Dickson-Miller.