

Simon Brandhorst

Minimal Salem numbers on supersingular K3 surfaces

Abstract: The entropy of a surface automorphism is either zero or the logarithm of a Salem number, that is an algebraic integer $\lambda > 1$ which is conjugate to $1/\lambda$ and all whose other conjugates lie on the unit circle. In the case of a complex K3 surface McMullen gave a strategy to decide whether a given Salem number arises in this way. To do this he combined methods from linear programming, number fields, lattice theory and the Torelli theorems. In this talk we extend these methods to automorphisms of supersingular K3 surfaces using the crystalline Torelli theorems and apply them in the case of characteristic 5. This is joint work with Víctor González-Alonso.