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Session 25 – ARITHMETIC ALGEBRAIC GEOMETRY

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Darren Glass (University of Pennsylvania) Epsilon-constants and Orthogonal Representations

ABSTRACT: Suppose \mathcal{X} is an arithmetic surface and let G be a finite group which acts tamely on \mathcal{X} . We define \mathcal{Y} to be the quotient scheme \mathcal{X}/G and we let V be a representation of G over $\overline{\mathbf{Q}}$. Associated to this information, we can define an L-function $L(\mathcal{Y}, V, s)$ which is conjectured to satisfy a certain functional equation involving the conductor and the number $\epsilon(\mathcal{Y}, V)$. Calculating these ϵ -constants is very difficult in general, but under additional hypotheses the situation can greatly simplify. My research assumes that V is an orthogonal representation, and in that case reduces the calculation of $\epsilon(\mathcal{Y}, V)$ to a calculation about how the representation acts at only a finite number of points.

1