Joint Meeting of Unione Matematica Italiana and American Mathematical Society

Session 25 – ARITHMETIC ALGEBRAIC GEOMETRY

June 13 2002, Pisa

ORGANIZERS:
Alan Adolphson (University of Stillwater)
Francesco Baldassarri (Università di Padova)
Massimo Bertolini (Università di Padova)
Steven Sperber (University of Minneapolis)
Douglas Ulmer (University of Arizona at Tucson)

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.