

 COLUMBIA | MATHEMATICS

ELLIS R. KOLCHIN MEMORIAL LECTURE



HARUZO HIDA
UCLA

Adjoint L-value and
the Tate conjecture

Abstract. We sketch a proof of the Tate conjecture on algebraic cycles for a good amount of quaternionic Shimura varieties. A key point is a twisted adjoint L-value formula relative to each quaternion algebra D/F for a totally real field F and its scalar extension $B = D \otimes_F E$ for a totally real quadratic extension E/F . The theta base-change lift of a Hilbert modular form f to $B^\times$ has period integral over the Shimura subvariety $Sh_D \subset Sh_B$ given by $L(1, Ad(f) \otimes \left(\frac{E/F}{\cdot}\right)) \neq 0$; so, Sh_D gives rise to a non-trivial Tate cycle in $H^{2r}(Sh_B, \mathbb{Q}_l(r))$ for $r = \dim Sh_D = \dim Sh_B/2$. We also present a conjectural description of all Tate cycles valid for all such B .

Wednesday, November 12th
4:30 PM • Math Hall, Room 520