

Hodge classes on products of quaternionic Shimura varieties

Kartik Prasanna*

kartikp@umich.edu

I will discuss the relation between Langlands functoriality and the theory of algebraic cycles in one of the simplest instances of functoriality, namely the Jacquet–Langlands correspondence for Hilbert modular forms. In this case, functoriality gives rise to a family of Tate classes on products of quaternionic Shimura varieties. The Tate conjecture predicts that these classes come from an algebraic cycle, which in turn should give rise to a Hodge class that is compatible with the Tate classes. While we cannot yet prove the Tate conjecture in this context, I will outline an unconditional proof of the existence of such a Hodge class.

This is joint work (in progress) with A. Ichino.

*Department of Mathematics, University of Michigan, 530 Church Street, Ann Arbor, MI 48109-1043, USA