

Hecke and Galois Properties of Special Cycles on Unitary Shimura Varieties

Dimitar Jetchev

École Polytechnique Fédérale de Lausanne

Abstract

We define a collection of special 1-cycles on certain Shimura 3-folds associated to $U(2,1) \times U(1,1)$ and appearing in the context of the Gan--Gross--Prasad conjectures. We study and compare the action of the Hecke algebra and the Galois group on these cycles via distribution relations and congruence relations that would ultimately lead to the construction of a novel Euler system for these Shimura varieties. The comparison is achieved adelically using Bruhat--Tits theory for the corresponding buildings.