

Action of Automorphisms on Filtrations on Cohomology and CH_0 of Abelian Varieties

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We prove that, if a symmetrically distinguished correspondence of a suitable complex abelian variety (which include any abelian variety of dimension atmost 5, powers of complex elliptic curves, etc.) vanishes as a morphism on a certain quotient of its middle singular cohomology, then it vanishes as a morphism on the deepest part of a particular filtration on the Chow group of 0-cycles of the abelian variety. As a consequence, we prove that given an automorphism of such an abelian variety, which acts as identity on a certain quotient of its middle singular cohomology, then it acts as identity on the deepest part of this filtration on the Chow group of 0-cycles of the abelian variety. As an application, we prove that for the generalized Kummer variety associated to a complex abelian surface and the automorphism induced from a symplectic automorphism of the complex abelian surface, the automorphism of the generalized Kummer variety acts as identity on its Chow group of 0-cycles.