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Section:

4. Algebraic Geometry

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Algebraic cycles of small codimension on simple $2p$- or $4p$-dimensional abelian variety

Let J be a simple $2p$- or $4p$-dimensional abelian variety over the field of complex numbers, where p is a prime number. Assume that one of the following conditions holds: 1) Cent $\mathrm{End}^0(J)$ is a totally real field of degree 1,2,4 over $\mathbb{Q}$; 2) J is a simple $2p$-dimensional abelian variety of CM-type (K, Φ) such that $K/\mathbb{Q}$ is a normal extension; 3) J is a simple $2p$-dimensional abelian variety such that $\mathrm{End}^0(J)$ is an imaginary quadratic extension of $\mathbb{Q}$. If $p \neq 5$, then for all natural $r < p$ the $\mathbb{Q}$-space $H^{2r}(J, \mathbb{Q}) \cap H^{r,r}$ is spanned by cohomology classes of intersections of divisors. If $p \neq 2$, then $H^4(J, \mathbb{Q}) \cap H^{2,2}$ is spanned by classes of intersections of divisors.