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On the Hodge-Tate decomposition in the imperfect residue field case. (English)

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J. Reine Angew. Math. 365, 97-113 (1986).

In this paper the Hodge-Tate decomposition in the imperfect residue field case is studied. Continuous cohomology groups $H^q(K, C_p(r))$ are determined for all $q \geq 0$, $r \in \mathbb{Z}$ and for any complete discrete valuation field K of mixed characteristics $(0, p)$. (When the residue field \bar{K} of K is perfect, this was done by Tate.) Contrary to the case \bar{K} is perfect, $H^1(K, C_p(1))$ does not vanish when \bar{K} is not perfect. By using this result, it is shown that there are many abelian varieties whose Tate module does not admit a Hodge-Tate decomposition when \bar{K} is not perfect.

MSC:

14C30 Transcendental methods, Hodge theory (algebraic-geometric aspects)

14K05 Algebraic theory of abelian varieties

14G15 Finite ground fields in algebraic geometry

Cited in **9** Documents

Keywords:

Hodge-Tate decomposition; imperfect residue field; abelian varieties; Tate module

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