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Unitary descent properties

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Abstract: Let k be a field of characteristic $\neq 2$, let L/k be an odd degree extension and let U be a unitary group defined over k . It is well-known that the natural map $H^1(k, U) \rightarrow H^1(L, U)$ is injective. Suppose that L/k is Galois with group G . Is then $H^1(k, U) \rightarrow H^1(L, U)^G$ a bijection? This is true for orthogonal groups, and one of the main ingredients in the proof is a result of Rosenberg and Ware concerning a descent property for Witt rings of quadratic forms, namely that $W(L)^G \simeq W(k)$. This talk will present a generalization of the Rosenberg–Ware theorem to Witt groups of hermitian forms, as well as some applications of this result, in particular to the above mentioned Galois cohomology descent question.

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