

On the G_2 -case of a purity conjecture for algebraic groups

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It is considered a regular local ring R containing the rational numbers and a 3-fold Pfister form $q = \ll a, b, c \gg$ over the quotient field K of R . It is known that the form q can be lifted up to a quadratic space over R provided that q has no residues with respect to hight one prime ideals of R .

We prove a stronger result under the same assumptions: q can be lifted up to a 3-fold Pfister space $\ll a', b', c' \gg$ for certain units a', b', c' in R .

The work is inspired by a question on purity for reductive groups raised by J.-L.Colliot-Thélène and J.-J.Sansuc. The result gives the affirmative answer in the case of a simple algebraic group of the type G_2 .