

DESCENDING COHOMOLOGY GEOMETRICALLY

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ABSTRACT. Motivated by a problem posed by Barry Mazur, in this talk I will discuss joint work with Jeff Achter and Charles Vial where we show that for smooth projective varieties over the rationals, the odd cohomology groups of degree less than or equal to the dimension can be modeled by the cohomology of an abelian variety, provided the geometric coniveau is maximal. This provides an affirmative answer to Mazur's question for all uni-ruled threefolds, for instance. In particular cases, one might expect to be able to construct this abelian variety geometrically; time permitting, I will discuss how a result of Beauville provides further information about this abelian variety in the case of a fibration in odd dimensional quadrics over a surface.

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