INVERTIBLE CATEGORIES AND ÉTALE COHOMOLOGY

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Abstract: Low-dimensional étale cohomology groups with coefficients in the multiplicative group classify various invertible objects. For example, the first cohomology group is isomorphic to the Picard group, the group of invertible objects in the symmetric monoidal category of quasi-coherent sheaves.

It is thus natural to ask whether or not this pattern continues in higher dimensions. Does the second étale cohomology group classify invertible objects in a symmetric monoidal bicategory of two-dimensional modules? In my talk I will present some work in progress towards an affirmative answer to this question in particular cases. Our definition of "two-dimensional module" will be a particular kind of enriched category. The two key ingredients in the proof are a descent result for two-dimensional modules and local triviality.