

Perverse motives and mixed Hodge modules

Let X be a smooth complex algebraic variety. In this talk, I will explain a way to use perverse homology sheaves of families of algebraic varieties over X to extend Nori's construction of an Abelian category of motives to a relative setting.

This approach (which may also be applied to perverse sheaves over finite field) leads to a notion of motivic perverse sheaves and provides a mean to select, among mixed Hodge modules and their extensions, those coming from geometry.

I will also explain how the geometry of these specific perverse sheaves can be used to relate the theory of motives developed by Morel and Voevodsky to the derived category of mixed Hodge modules.

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