
PAYMAN ESKANDARI, University of Winnipeg

On the unipotent parts of the Hodge and Tate conjectures

The motivic version of the Hodge conjecture for *mixed* motives (over appropriate base fields) predicts that for any mixed motive, the motivic Galois group and the Mumford-Tate group should coincide. The motivic version of the Tate conjecture for mixed motives (again, over appropriate base fields) predicts that after a change of coefficients to \mathbb{Q}_ℓ , the motivic Galois group of any mixed motive should be equal to the closure of the image of the absolute Galois group in the corresponding ℓ -adic representation. One may consider the unipotent parts of these conjectures, i.e., the equality of the unipotent radicals of the groups in question in the case of each conjecture. In this talk, we formulate refinements of the unipotent parts of these conjectures, and give sufficient criteria in terms of End and Ext groups for these refinements to hold. The results are in the context of abstract neutral tannakian categories. In particular, the results apply to the setting of any neutral tannakian category of mixed motives and any of the fullness conjectures for enriched realizations.