

MOTIVIC FUNDAMENTAL GROUPS

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We discuss analogies between Grothendieck's algebraic fundamental group and groups arising from categories of mixed Tate motives. Deligne-Goncharov have constructed a "motivic fundamental group" for certain varieties. With H. Esnault, we have shown how to relate the Deligne-Goncharov fundamental group to algebraic groups arising as the fundamental groups of Tannakian categories of mixed Tate motives. This gives a Tate-motivic analog of the fundamental exact sequence of Grothendieck fundamental groups relating the arithmetic fundamental group with the geometric fundamental group and the Galois group of the base-field, with the Deligne-Goncharov fundamental group playing the role of Grothendieck's geometric fundamental group. As application, our results give in some cases an interpretation of mixed Tate motives over a k -scheme X as unipotent local systems on X of mixed Tate motives over k .