

ON THE ARITHMETICITY OF THE GROTHENDIECK-TEICHMÜLLER GROUP

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The absolute Galois group of the field of rational numbers may be regarded as one of the central objects in modern number theory. One traditional approach [suggested by A. Grothendieck] to understanding this group is by studying the geometric Galois action on the ℓ -adic fundamental groups of suitable geometric objects. In this context, in light of Belyi's theorem, it is well-known that the absolute Galois group of the field of rational numbers may be embedded into the Grothendieck-Teichmüller group GT [which was originally introduced by V. Drinfeld] via the natural outer action on the ℓ -adic fundamental group of the projective line minus three points over the field of algebraic numbers. In light of this embedding, GT has been regarded as a sort of purely combinatorial approximation of the absolute Galois group of the field of rational numbers. On the other hand, it is not known how precise this approximation is. In this talk, I will discuss recent progress surrounding this topic that is based on an approach via combinatorial anabelian geometry.