NUMBER FIELDS ARE DETERMINED BY ABELIAN L-SERIES

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Abstract

If will show that two number fields are isomorphic if there is an isomorphisms of (character groups of) their abelianized absolute Galois groups under which the corresponding L-series are all equal. For the trivial character only, this is so-called "arithmetical equivalence", which is known not to imply isomorphism in general. The proof goes via an isomorphism of associated "quantum statistical mechanical systems", that we argue is a substitute for the absolute Galois group (joint work with Matilde Marcolli).