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It is known that two number fields with the same Dedekind zeta function are not necessarily isomorphic. The zeta function of a number field can be interpreted as the partition function of an associated quantum statistical mechanical system, which is a  $C^*$ -algebra with a one parameter group of automorphisms, built from Artin reciprocity. We prove that isomorphism of number fields is the same as isomorphism of these associated systems. Considering the systems as noncommutative analogues of topological spaces, this result can be seen as another version of Grothendieck's "anabelian" program, much like the Neukirch-Uchida theorem characterizes isomorphism of number fields by topological isomorphism of their associated absolute Galois groups. We also use these systems to prove that there is a continuous bijection between the character groups (viz., Pontrjagin duals) of the abelianized Galois groups of the two number fields that induces an equality of all corresponding L-series (not just the zeta function), then the number fields are isomorphic. (Received September 08, 2010)