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``The local Langlands conjecture''

March 18, 1999

The local Langlands conjecture asserts that there is a natural bijection between the (usually infinite dimensional) irreducible smooth representations of $\mathbf{GL}_n(\mathbf{Q}_p)$ and the n dimensional representations of the absolute Galois group of \mathbf{Q} . It provides a big generalization of the Artin map in local class field theory, and is sometimes referred to as a non-abelian reciprocity law.

In this talk I'll first try to explain the statement of this conjecture and suggest why one might care about it. I will then introduce formal groups and sketch how, following suggestions of Carayol, Deligne and Drinfeld they can be used to give a natural construction of the sort for correspondence. This generalises the approach of Lubin and Tate (1965) to local class field theory, which can be thought of as the $n=1$ instance of this method.

I gave lectures on this topic in the number theory seminar. Those lectures were intended for specialists; this colloquium lecture is intended for a general mathematical audience.