TOPICS COURSE PROPOSAL: THE LOCAL LANGLANDS CONJECTURE FOR GL(2)

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Suppose that F is a p-adic field. *Local class field theory* provides a bijection between the characters of the group $F^\times$ and the unitary characters of the Galois group of F. This is a special case (with $n = 1$) of the local Langlands conjecture for $\mathrm{GL}(n)$, which postulates the existence and uniqueness of a bijection (with certain extra properties) between irreducible smooth representations of the general linear group $\mathrm{GL}(n, F)$ and n-dimensional representations of the Weil-Deligne group of F (which are very closely related to n-dimensional representations of the Galois group of F).

The local Langlands conjecture is now a theorem, proved in 1998 by Harris-Taylor and independently by Henniart. In this course we will focus on the case $n = 2$, where it will be possible for us in one semester to give an explicit and entirely local proof of the conjecture.

Text: We will follow the book "The local Langlands conjecture for GL(2)" by Colin Bushnell and Guy Henniart.

Prerequisites: The course will be mostly self-contained. Beyond the core courses, you'll need to be familiar with the representation theory of finite groups and with the basics of p-adic fields. We will review the statements of local class field theory (taking them as a black box).