

The Fontaine-Mazur conjecture and overconvergent modular forms

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Abstract

The Fontaine-Mazur conjecture predicts that a two dimensional p -adic Galois representation of the absolute Galois group of \mathbb{Q} which is irreducible, unramified outside finitely many places, and potentially semi-stable at p , comes from a modular form.

This is a remarkable conjecture, because it says that a local condition at p implies that the eigenvalues of Frobenius elements are Weil numbers,

and that there is well defined and entire complex L -function attached to the Galois representation.

I will explain a result which confirms this conjecture for representations coming from finite slope overconvergent modular forms: If such a representation is potentially semi-stable then (upto a twist) it comes from a classical form.