ON JANNSEN'S CONJECTURE FOR HECKE CHARACTERS OF IMAGINARY QUADRATIC FIELDS

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Abstract

We present a collection of results on a conjecture of Jannsen about the p-adic realizations associated to Hecke characters over an imaginary quadratic field K of class number 1.

The conjecture is easy to check for Galois groups purely of local type (Section 1). In Section 2 we define the p-adic realizations associated to Hecke characters over K. We prove the conjecture under a geometric regularity condition for the imaginary quadratic field K at p, which is related to the property that a global Galois group is purely of local type. Without this regularity assumption at p, we present a review of the known situations in the critical case (Section 3) and in the non-critical case (Section 4) for these realizations. We relate the conjecture to the non-vanishing of some concrete non-critical values of the associated p-adic L-function of the Hecke character.

Finally, in Section 5 we prove that the conjecture follows from a general conjecture on Iwasawa theory for almost all Tate twists.