ON THE TRIVIAL LOCUS OF P-ADIC LOCAL SYSTEMS

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Let k be a number field, X a smooth, geometrically connected variety over k and V a p-adic local system on X. The trivial locus of V is the set of closed points x of X where x^*V has finite monodromy. The following is a consequence of the unramified Fontaine-Mazur conjecture:

Conjecture: The trivial locus of V is empty unless V itself has finite monodromy.

I will discuss evidences towards this conjecture; in particular explain why it holds if V is part of a \Q-compatible family (e.g. V=R^2if_*\Q_p(i) for f:Y->X a smooth proper morphism) and partial results when it is a subquotient if such. This is a joint work with Akio Tamagawa.