

On the Andre-Oort conjecture

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Abstract

This is joint work with *A. Yafaev*. We will indicate the proof of the following

Theorem. *Let $\mathrm{Sh}_K(G, X)$ be a Shimura variety and let S be a set of special subvarieties in $\mathrm{Sh}_K(G, X)(C)$. We make one of the following assumptions:*

1. *assume the Generalized Riemann Hypothesis for CM fields or*
2. *assume there is a faithful representation V of G such that the corresponding generic Hodge structures attached to the special subvarieties in S lie in one isomorphism class.*

Then every irreducible component of the Zariski-closure of S in $\mathrm{Sh}_K(G, X)(C)$ is a special subvariety.

In the special case where S is a set of special points the theorem above proves the Andre–Oort conjecture under one of the two assumptions.