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On the infinite fern of Galois representations of unitary type. (Sur la fougère infinie des représentations galoisiennes de type unitaire.) (English. French summary) [Zbl 1279.11056](#)

Ann. Sci. Éc. Norm. Supér. (4) 44, No. 6, 963-1019 (2011).

Summary: Let E be a CM number field, p an odd prime totally split in E , and let X be the p -adic analytic space parameterizing the isomorphism classes of 3-dimensional semisimple p -adic representations of $\text{Gal}(\overline{E}/E)$ satisfying a selfduality condition “of type $U(3)$ ”. We study an analogue of the infinite fern of Gouvêa-Mazur in this context and show that each irreducible component of the Zariski-closure of the modular points in X has dimension at least $3[E : \mathbb{Q}]$. As important steps, and in any rank, we prove that any first order deformation of a generic enough crystalline representation of $\text{Gal}(\overline{\mathbb{Q}_p}/\mathbb{Q})$ is a linear combination of trianguline deformations, and that unitary eigenvarieties are étale over weight space at the non-critical classical points. As another application, we give a surjectivity criterion for the localization at p of the adjoint’ Selmer group of a p -adic Galois representation attached to a cuspidal cohomological automorphic representation of $\text{GL}_n(\mathbb{A}_E)$ of type $U(n)$ (for any n).

MSC:

[11F80](#) Galois representations

[11R33](#) Integral representations related to algebraic numbers; Galois module structure of rings of integers

[12F10](#) Separable extensions, Galois theory

Cited in **1** Review
Cited in **23** Documents

Keywords:

Galois representation; automorphic form; unitary group; trianguline; infinite fern; eigenvariety; adjoint primed Selmer group

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