

**Chenevier, Gaëtan; Harris, Michael**

**Construction of automorphic Galois representations. II.** (English) Zbl 1310.11062  
Camb. J. Math. 1, No. 1, 53-73 (2013).

Let  $F$  be a totally real field and  $K$  a totally imaginary quadratic extension of  $F$ . This paper constructs Galois representations associated to certain cuspidal automorphic representations of  $\mathrm{GL}(n, K)$ : Let  $\Pi$  be a cuspidal automorphic representation of  $\mathrm{GL}(n, K)$  that is cohomological and ‘conjugate self-dual’. Then there exists a semi-simple continuous Galois representation  $\rho_{\iota, \Pi} : G_K \rightarrow \mathrm{GL}(n, \overline{\mathbb{Q}}_p)$  associated to  $\Pi$  (where  $\iota$  is a choice of embeddings of  $\overline{\mathbb{Q}}$  into  $\overline{\mathbb{Q}}_p$  and  $\mathbb{C}$ ) which satisfying some local compatibility conditions at places  $v$  not dividing  $p$  and as well as dividing  $p$ . This main result is achieved by constructing missing Galois representations for even degree  $F$  by  $p$ -adic approximation and has applications to automorphy lifting theorems.

This is a revised version of the articles “Endoscopic transfer”, and “Construction of automorphic Galois representations. I” by *L. Clozel, M. Harris* and *J.-P. Labesse* [Stabilization of the trace formula, Shimura varieties, and arithmetic applications. Volume 1: On the stabilization of the trace formula. Somerville, MA: International Press, 475–496, 497–523 (2011; [Zbl 1255.11027](#))] and of an earlier version of the present article [<http://fa.institut.math.jussieu.fr/node/45>].

Reviewer: [Imin Chen \(Burnaby\)](#)

**MSC:**

- [11F80](#) Galois representations
- [11F85](#)  $p$ -adic theory, local fields
- [11F70](#) Representation-theoretic methods; automorphic representations over local and global fields
- [11S37](#) Langlands-Weil conjectures, nonabelian class field theory
- [22E55](#) Representations of Lie and linear algebraic groups over global fields and adèle rings
- [22E50](#) Representations of Lie and linear algebraic groups over local fields

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**Keywords:**

[Galois representations](#); [automorphic forms](#); [Shimura varieties](#); [eigenvarieties](#)

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