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Michael Harris* (harris@math.columbia.edu). *Local Langlands parametrization for G_2 .*

This is a report on joint work with C. Khare and J. Thorne. We construct a Langlands parameterization of supercuspidal representations of G_2 over a p -adic field. More precisely, for any finite extension K/\mathbb{Q}_p we will construct a bijection

$$\mathcal{L}_g : \mathcal{A}_g^0(G_2, K) \rightarrow \mathcal{G}^0(G_2, K)$$

from the set of generic supercuspidal representations of $G_2(K)$ to the set of irreducible continuous homomorphisms $\rho : W_K \rightarrow G_2(\mathbb{C})$ with W_K the Weil group of K . The construction of the map is simply a matter of assembling arguments that are already in the literature, plus an unpublished result of Savin (included as an appendix in our article) on the global genericity of an exceptional theta lift. The proof of surjectivity is an application of a recent result of Hundley and Liu on automorphic descent from $GL(7)$ to G_2 . This allows us to carry out a strategy, based on automorphy lifting theorems, that was initially developed in our joint work with G. Böckle on potential automorphy over function fields. The proof of injectivity also uses global arithmetic methods. (Received September 14, 2019)