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Reducing the minimal representation modulo ℓ; an exercise

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Abstract. Let G be a simply connected Chevalley group over a p-adic field, with the residue field of order q, corresponding to an irreducible simply laced root system. We show that the minimal representation V of G can be defined over $\mathbb{Q}$. We show that the reduction of V modulo $\ell \neq p$ is minimal (in appropriate sense) and is irreducible for ℓ outside an explicit, finite set determined by q.

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