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Local Langlands correspondences in the cohomology of Rapoport-Zink spaces

We generalize the work of M. Harris and R. Taylor on the local Langlands correspondence for the linear group over $\mathbb{Q}_p$. We prove some cases of the Kottwitz conjectures for the supercuspidal part of the compactly supported ℓ-adic cohomology of Rapoport-Zink rigid-analytic spaces. This means that we decompose this part in terms of local Langlands correspondences.

In particular, we prove the first case of a non-abelian reciprocity law constructed geometrically and associated to groups other than inner forms of the linear group. More precisely, we do this for the unramified unitary group in three variables over $\mathbb{Q}_p$.