L-groups for covering groups

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Abstract.

I will survey and expand on recent efforts to incorporate covering groups (e.g. the metaplectic groups) into the Langlands program. There are now a large number of results of the following sort: irreducible representations of a covering group $\tilde{G}$ are parameterized by homomorphisms from the Weil group into a complex reductive group $\tilde{G}^\vee$. These results require choices such as an additive character or a system of fourth roots of unity, to pin down the parameterization. I will describe methods to get rid of these choices, by using a carefully chosen L-group (an extension of the Galois group by the dual group $\tilde{G}^\vee$) instead of just the complex reductive dual group $\tilde{G}^\vee$.