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A function-sheaf dictionary for p-adic tori

We present a function–sheaf dictionary which geometrizes quasicharacters of p-adic tori. Let K be any non-Archimedean local field (no restriction on the characteristic) and let T be any algebraic torus over K (no restriction on the ramification of the splitting field). We introduce a category of certain Weil sheaves, called quasicharacter sheaves, on the pro-group scheme $\mathbf{T}$ obtained by applying the Greenberg functor to the Néron model of T. Then we explain how to translate quasicharacters of $T(K)$ into quasicharacter sheaves on $\mathbf{T}$ and vice versa. In this way we hope to dispel the misapprehension that positive-depth characters are not amenable to geometrization. The talk will include comments on a geometric and categorical form of the local Langlands correspondence for algebraic tori. Joint work with David Roe.