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Niccolò Ronchetti*, Department of Mathematics, 450 Serra Mall, Stanford University, Stanford, CA 94305. *Local base change via Tate cohomology.*

In this talk we describe a new way to realize cyclic base change (a special case of Langlands functoriality) for prime degree extensions of characteristic zero local fields. Let E/F be a prime degree l Galois extension of local fields of residue characteristic $p \neq l$. Let π be an irreducible cuspidal l -adic representation of $\mathrm{GL}_n(F)$ and ρ be an irreducible cuspidal l -adic representation of $\mathrm{GL}_n(E)$ which is Galois-invariant. Under some minor technical conditions on π and ρ (for instance, we assume that both are level zero) we prove that the $\bmod l$ -reductions $r_l(\pi)$ and $r_l(\rho)$ are in base change if and only if the Tate cohomology of ρ with respect to the Galois action is isomorphic, as a modular representation of $\mathrm{GL}_n(F)$, to the Frobenius twist of $r_l(\pi)$.

This proves a special case of a conjecture of Treumann and Venkatesh as they investigate the relationships between linkage and Langlands functoriality. (Received August 10, 2015)