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Anders J. Frankild (frankild@math.ku.dk), **Sean Sather-Wagstaff***
(sather@math.kent.edu) and **Roger A. Wiegand** (rwiegand@math.unl.edu). *Ext-vanishing
and ascent of module structures.*

Let $\varphi: R \rightarrow S$ be a formally étale local homomorphism inducing an isomorphism of residue fields. Examples include the natural map from R to its henselization or to its completion. For a finitely generated R -module M , we show that the R -module structure for M ascends along the map φ if and only if $\text{Ext}_R^i(S, M)$ is finitely generated over R for $i = 1, \dots, \dim_R(M)$. Other equivalent conditions will also be exhibited. In addition, we discuss the implications of the ascent of such a module structure for the residual homomorphisms $\bar{\varphi}: R/P \rightarrow S/PS$ when $P \in \text{Supp}_R(M)$. (Received January 09, 2007)