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Sean Sather-Wagstaff* (sean.sather-wagstaff@ndsu.edu) and **Benjamin Anderson**
(benjamin.j.anderson@ndsu.edu). *Finite Generation of Ext and ascent of module structures.*

Let $\varphi: (R, \mathfrak{m}, k) \rightarrow (S, \mathfrak{m}S, k)$ be a flat local ring homomorphism, and let M be a finitely generated R -module. We show that the following conditions are equivalent:

1. M has an S -module structure compatible with its R -module structure via φ ;
2. $\text{Ext}_R^i(S, M) = 0$ for $i \geq 1$;
3. $\text{Ext}_R^i(S, M)$ is finitely generated over R for $i = 1, \dots, \dim_R(M)$;
4. $\text{Ext}_R^i(S, M)$ is finitely generated over S for $i = 1, \dots, \dim_R(M)$;
5. $\text{Ext}_R^i(S, M)$ satisfies Nakayama's Lemma over R for $i = 1, \dots, \dim_R(M)$.

This improves upon recent results of Frankild, Sather-Wagstaff, and Wiegand and results of Christensen and Sather-Wagstaff. This is joint work with Ben Anderson (North Dakota State University). (Received September 09, 2010)