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Lifting A(1)-Modules

The Steenrod algebra, $\mathcal{A}$, arises topologically as the algebra of stable operations on cohomology. For any nonnegative integer n, we consider $\mathcal{A}(n)$, a particular subalgebra of $\mathcal{A}$. Given an $\mathcal{A}(n)$-module, M, for some n, we can ask whether it lifts to a module over $\mathcal{A}$. (That is, whether there exists any $\mathcal{A}$-module whose underlying $\mathcal{A}(n)$-module is M.)

In this talk, we will focus on lifting $\mathcal{A}(1)$-modules. Some obstructions to these lifting problems are detected via a spectral sequence that computes localized Ext groups. The computation of this spectral sequence can be simplified by a classification theorem for a particular class of $\mathcal{A}(1)$-modules.