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Weighted polyhedral products and Steenrod's problem

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In algebraic topology Steenrod's problem is a classical problem asking which graded commutative algebras can be realized as the cohomology of spaces. We study Steenrod's problem for graded commutative exterior algebras with a ``weighted'' multiplication. To resolve the problem we construct a weighted version of polyhedral products and compute their cohomology in some special cases. Further we prove that these weighted polyhedral products statisfy homotopy properties like original polyhedral products.

This is joint work with Donald Stanley and Stephen Theriault.