1176-55-227   **Jeffrey D Carlson*** (`jdkcarlson@gmail.com`). *Biquotients and a product on the two-sided bar construction.*

In 1960s and '70s five separate teams of authors showed that the Eilenberg–Moore spectral sequence computing the cohomology of a homogeneous space collapsed, but there was no word on the ring structure until 2019, when Franz showed it was what one would hope.

In this talk we generalize this proof to biquotients $K \backslash G / H$, an attractive class of smooth manifolds that contains exotic spheres and essentially all known examples of manifolds admitting a Riemannian metric of nonnegative sectional curvature. The key new ingredient is a natural multiplication on the two-sided bar construction $B(M, A, N)$ of differential graded algebras, subject to a homotopy-commutativity condition. Background will be explained and proofs limply gestured at.

This work is joint with Franz, who proposed the mod-two reduction of the formula for the product and a critical related homotopy. (Received January 24, 2022)