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Power Operations and the Kunnetth Spectral Sequence

Power operations have been constructed and successfully utilized in the Adams and Homological Homotopy Fixed Point Spectral Sequences by Bruner and Bruner-Rognes. It was thought that such results were not specific to the spectral sequence, but rather that they arose because highly structured ring spectra are involved. In this talk, we show that while the Kunnetth Spectral Sequence enjoys some nice multiplicative properties, there are no non-zero algebraic operations in E_2 (other than the square). Despite the negative results we are able to use old computations of Steinberger's with our current work to compute operations in the homotopy of some relative smash products.