

1136-55-222

**Mark W. Johnson\*** (mwj3@psu.edu), Penn State Altoona, 3000 Ivyside Dr., Altoona, PA 16601, and **David Blanc** and **James M. Turner**. *A constructive approach to higher homotopy operations.*

Higher homotopy operations, especially Toda brackets and Massey products, have long been important computational tools in homotopy theory. The current project proposes a very explicit way to construct higher homotopy operations associated to finite, directed, homotopy commutative diagrams, using grids of homotopy pullbacks and a refinement of the Reedy matching construction. This allows us to present the construction in completely general terms, in some cases not requiring base points, or allowing “hybrid” situations where some portions of a diagram are required to respect base points and others are not. Our hope is to eventually use this approach to study any algebraic structure on the collection of higher homotopy operations, but we have only a few small results in that direction so far. (Received January 16, 2018)