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The groups  $bo_*bo$  have a been long understood by the work of Adams, Mahowald, Milgram, and others. The Adams perspective is based on numerical polynomials, wheras the Mahowald perspective is based on a splitting of  $bo_*bo$  into the  $bo$ -homology of integral Brown-Gitler spectra.

Following a program initiated by Mahowald, we will discuss the analogous approach at odd primes. We will explain how to relate Mahowald's  $bo$ -Brown-Gitler spectrum approach to Laures' 2-variable modular forms, and a third geometric approach involving isogenies of elliptic curves. (Received September 17, 2013)