1125-55-2764 **Ben Reid*** (bwr@uoregon.edu). *Constructing a finite spectrum with a v_2 self map at $p = 3$.*
Certain families of periodic elements in the stable homotopy groups of spheres arise from non-nilpotent self maps of spectra with special homotopic properties. The Nilpotence and Periodicity theorems describe these v_n self maps and how to detect them using the Morava K theories. It is known that for each finite n, we can find a finite spectrum that has a v_n self map, but few concrete examples exist. Working at the prime 3, we use a technique of Palmieri and Sadofsky to construct algebraic analogs of the v_n self maps that are easier to compute, known as u_i self maps. In particular, we prove a theorem about the relation between u_i self maps and Margolis homology, and use it to produce a finite spectrum with a v_2 self map. (Received September 20, 2016)