

1152-05-308

**Joseph Doolittle** and **Bennet Goeckner\*** (goeckner@uw.edu). *Resolving Stanley's conjecture on  $k$ -fold acyclic complexes.*

In 1993 Stanley showed that if a simplicial complex is acyclic over some field, then its face poset can be decomposed into disjoint rank 1 boolean intervals whose minimal faces together form a subcomplex. Stanley further conjectured that complexes with a higher notion of acyclicity could be decomposed in a similar way using boolean intervals of higher rank. We provide an explicit counterexample to this conjecture. We also prove a modified version of the conjecture and show that the original conjecture holds when this notion of acyclicity is as high as possible. (Received September 06, 2019)