

Meeting: 1002, Pittsburgh, Pennsylvania, SS 8A, Special Session on Graph Polynomials

1002-05-102 **Jason I Brown** and **Bruce E Sagan*** (sagan@math.msu.edu), Department of Mathematics,
Michigan State University, East Lansing, MI 48824-1027. *Monomial Bases for NBC
Complexes*. Preliminary report.

In a seminal paper, Richard Stanley noted that the Stanley-Reisner ring R of an NBC (no broken circuit) complex of a graph G is Cohen-Macaulay. Jason Brown gave an explicit description of a homogeneous system of parameters for R in terms of fundamental edge-cuts in G . So R modulo this h.s.o.p. is a finite dimensional vector space. We conjecture an explicit monomial basis for this vector space in terms of the circuits of G and prove that the conjecture is true for several families of graphs. No familiarity with Cohen-Macaulay rings or the NBC complex will be assumed. (Received September 07, 2004)