1068-05-167 **Jonathan D Browder*** (browder@math.washington.edu), 1620 N 45th St Apt 203, Seattle, WA 98103. *Face Numbers of Cohen-Macaulay Flag Complexes.*

A simplicial complex Δ is *flag* if whenever τ is a subset of the vertices of Δ such that any two elements of τ form an edge in Δ then τ is itself a face of Δ. In other words, flag complexes are simplicial complexes that are completely determined by their edges. It was conjectured by Kalai and proved by Frohmader that if Δ is a d-dimensional flag complex, then there is another d-dimensional simplicial complex, Γ, which has the same number of faces as Δ in each dimension and is *balanced* (that is, properly d-colorable). Kalai further conjectured that if Δ is in addition Cohen-Macaulay, we may take Γ to be Cohen-Macaulay as well.

In this talk I will exhibit a large class of complexes for which Kalai's conjecture holds, and explain the methods of the proof, which involves finding an appriate isomorphic image of the Stanley-Reisner ring. I will also note how our class contains the class of Cohen-Macaulay complexes arising as independence complexes of graphs of sufficient girth. (Received January 17, 2011)