1096-05-1883 **Kai Fong Ernest Chong*** (kc343@cornell.edu), Department of Mathematics, 310 Malott Hall, Cornell University, Ithaca, NY 14853. *Macaulay decomposability and the flag f-vectors of generalized colored complexes.*

A colored complex of type $\mathbf{a} = (a_1, \ldots, a_n)$ is a simplicial complex Δ together with an ordered partition $(V_1, \ldots, V_n)$ of its vertex set, such that every face F of Δ satisfies $|F \cap V_i| \leq a_i$. For each $\mathbf{b} = (b_1, \ldots, b_n)$, let $f_{\mathbf{b}}$ be the number of faces F of Δ such that $|F \cap V_i| = b_i$. The array of integers $\{f_{\mathbf{b}}\}_{\mathbf{b} \leq \mathbf{a}}$ is called the fine f-vector of Δ, and it is a refinement of the f-vector of Δ.

In this talk, we introduce the notion of $\mathbf{a}$-Macaulay decomposability for simplicial complexes. An $\mathbf{a}$-Macaulay decomposable simplicial complex is vertex-decomposable, and every pure color-shifted $\mathbf{a}$-balanced complex is $\mathbf{a}$-Macaulay decomposable. This allows a geometric interpretation of 'decomposing' such complexes into pieces we can better understand, and we discuss its relation to numerical characterizations of the fine f-vectors of colored complexes of arbitrary type, and the flag f-vectors of completely balanced Cohen-Macaulay complexes. (Received September 16, 2013)