1081-13-374 **Ben Richert*** (`brichert@calpoly.edu`), Math Dept, Cal Poly, San Luis Obispo, CA 93407.
Partitionable Simplicial Complexes. Preliminary report.

A simplicial complex Δ is said to be partitionable if there exists a partition $\Delta = \cup_{i=1}^{r}[Fi, Gi]$ where the G_i are the facets of Δ and $[Fi, Gi] = \{F \in \Delta \mid Fi \subseteq F \subseteq G_i\}$. Stanley has conjectured that if Δ is Cohen-Macaulay then Δ is partitionable. We assume this conjecture and explore some of the implications.

If Δ is a pure simplicial complex of dimension n on v vertices, we define $C_{(n-1)}(\Delta)$ to be the simplicial complex on one more vertex $v+1$ such that $\{i_1, \ldots, i_k\} \in C_{(n-1)}(\Delta)$ if and only if either $\{i_1, \ldots, i_k\} \in \Delta$ or $i_k = v+1$, $\{i_1, \ldots, i_{k-1}\} \in \Delta$ and $k-1 \leq n-1$. Let $C^t_{n-1}(\Delta)$ be the t-fold application of this procedure. Then we prove that $\min\{t \mid C^t_{n-1}(\Delta)$ is paritionable$\} = \dim(k[\Delta]) - \operatorname{depth}(k[\Delta])$ where $k[\Delta]$ is the Stanley-Reisner ring of Δ. (Received February 14, 2012)