1073-05-198 **Daniel W Cranston**, **Jaehoon Kim** and **William B Kinnersley*** (wkinner2@illinois.edu).
t-Tone Coloring of Graphs.

A t-tone k-coloring of G assigns to each vertex of G a set of t colors from $\{1, \ldots, k\}$ so that vertices at distance d share fewer than d common colors. The *t-tone chromatic number* of G, denoted $\tau_t(G)$, is the minimum k such that G has a t-tone k-coloring. Bickle and Phillips posed several conjectures regarding the relationship between $\tau_2(G)$ and $\Delta(G)$; we confirm one, refute another, and explore a third. In particular we show that $\tau_2(G) \leq \lceil (2+\sqrt{2})\Delta(G) \rceil$ for all G and that $\tau_2(G) \leq 8$ when $\Delta(G) \leq 3$. For general t, we give upper bounds on $\tau_t(G)$ in terms of $\Delta(G)$ over several classes of graphs. (Received August 01, 2011)