1161-05-200 **R. Kirsch*** (kirsch@iastate.edu) and **A. J. Radcliffe**. *Maximizing the density of K_t's in graphs of bounded degree and clique number.*

Zykov showed in 1949 that among graphs on n vertices with clique number $\omega(G) \leq \omega$, the Turán graph $T_\omega(n)$ maximizes not only the number of edges but also the number of copies of K_t for each size t. The problem of maximizing the number of copies of K_t has also been studied within other classes of graphs, such as those on n vertices with maximum degree $\Delta(G) \leq \Delta$.

We combine these restrictions and investigate which graphs with $\Delta(G) \leq \Delta$ and $\omega(G) \leq \omega$ maximize the number of copies of K_t per vertex. We define $f_t(\Delta, \omega)$ as the supremum of ρ_t, the number of copies of K_t per vertex, among such graphs, and show for fixed t and ω that $f_t(\Delta, \omega) = (1 + o(1))\rho_t(T_\omega(\Delta + \lfloor \frac{\Delta}{\omega-1} \rfloor))$. For two infinite families of pairs (Δ, ω), we determine $f_t(\Delta, \omega)$ exactly for all $t \geq 3$. For another we determine $f_t(\Delta, \omega)$ exactly for the two largest possible clique sizes. Finally, we demonstrate that not every pair (Δ, ω) has an extremal graph that simultaneously maximizes the number of copies of K_t per vertex for every size t. (Received August 17, 2020)