1138-05-222 **He Guo*** (he.guo@gatech.edu), Room 117, Skiles Building, 686 Cherry Street, Atlanta, GA 30332, and **Lutz Warnke**. *Packing nearly optimal Ramsey $R(3,t)$ graphs.*

In 1995 Kim famously proved the Ramsey bound $R(3,t) \geq ct^2/\log t$ by constructing an n-vertex graph that is triangle-free and has independence number at most $C\sqrt{n \log n}$. We extend this celebrated result, which is best possible up to the value of the constants, by approximately decomposing the complete graph K_n into a packing of such nearly optimal Ramsey $R(3,t)$ graphs.

More precisely, for any $\epsilon > 0$ we find an edge-disjoint collection $(G_i)_i$ of n-vertex graphs $G_i \subseteq K_n$ such that (a) each G_i is triangle-free and has independence number at most $C_\epsilon\sqrt{n \log n}$, and (b) the union of all the G_i contains at least $(1-\epsilon)\binom{n}{2}$ edges. Our algorithmic proof proceeds by sequentially choosing the graphs G_i via a semi-random (i.e., Rödl nibble type) variation of the triangle-free process.

As an application, we prove a conjecture in Ramsey theory by Fox, Grinshpun, Liebenau, Person, and Szabó (concerning a Ramsey-type parameter introduced by Burr, Erdős, Lovász in 1976). Namely, denoting by $s_r(H)$ the smallest minimum degree of r-Ramsey minimal graphs for H, we close the existing logarithmic gap for $H = K_3$ and establish that $s_r(K_3) = \Theta(r^2 \log r)$. (Received February 09, 2018)