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The Ramsey-Turán problem with small independence number.

Let s be an integer, $f = f(n)$ a function, and H a graph. Define the *Ramsey-Turán number* $\mathbf{RT}_s(n, H, f)$ as the maximum number of edges in an H -free graph G of order n with $\alpha_s(G) < f$, where $\alpha_s(G)$ is the maximum number of vertices in a K_s -free induced subgraph of G . In this talk we consider $\mathbf{RT}_s(n, K_t, n^\delta)$ for fixed $\delta < 1$. We show that for an arbitrarily small $\varepsilon > 0$ and $1/2 < \delta < 1$, $\mathbf{RT}_s(n, K_{s+1}, n^\delta) = \Omega(n^{1+\delta-\varepsilon})$ for all sufficiently large s . This is nearly optimal, since a trivial upper bound yields $\mathbf{RT}_s(n, K_{s+1}, n^\delta) = O(n^{1+\delta})$. Furthermore, the range of δ is as large as possible. (Received February 16, 2016)