$K_{2,t}$ Minors in Dense Graphs

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Let H be a graph. If G is an n-vertex simple graph that does not contain H as a minor, what is the maximum number of edges that G can have? This is at most linear in n, but the exact expression is known only for very few graphs H. For instance, when H is a complete graph K_t, the "natural" conjecture, $(t-2)n - \frac{1}{2}(t-1)(t-2)$, is true only for $t \leq 7$ and false for large t.

In this talk we will discuss the maximum number of edges when H is the complete bipartite graph $K_{2,t}$. We show that in this case, the analogous "natural" conjecture, $\frac{1}{2}(t+1)(n-1)$, is (for all $t \geq 2$) the truth for infinitely many n.

This is joint work with Bruce Reed and Paul Seymour.