

Meeting: 1006, Lubbock, Texas, SS 12A, Special Session on Graph Theory

1006-05-30 **Mark Ellingham*** (mne@math.vanderbilt.edu), Department of Mathematics, SC 1326,
Vanderbilt University, Nashville, TN 37240, and **Chris Stephens**. *Progress on the orientable
genus of joins of complete and edgeless graphs*. Preliminary report.

In 1965 Ringel determined the orientable and nonorientable surfaces on which the complete bipartite graph $K_{m,n}$ can be embedded. There are many faces in embeddings of $K_{m,n}$ where extra edges can be added without increasing the genus, so some supergraphs of $K_{m,n}$ will also be embeddable on the same surfaces. The graph $\overline{K_m} + K_n$, the join of an edgeless graph $\overline{K_m}$ with a complete graph K_n , is a supergraph of $K_{m,n}$. Recently we showed that $\overline{K_m} + K_n$ can be embedded on the same nonorientable surfaces as $K_{m,n}$ provided $m \geq n - 1$ (with the exception of $m = 4, n = 5$). It is conjectured that a similar result holds for orientable surfaces. We discuss progress towards proving this conjecture. (Received January 12, 2005)