

1096-AE-513 **Mark Ellingham*** (mark.ellingham@vanderbilt.edu). *Embeddings of graphs with hamilton cycle faces.*

The genus problem for graphs involves embedding a graph (drawing it without edge crossings) in a surface that is as simple as possible (has minimum genus). Minimum genus embeddings generally have faces that are small, triangles if possible. However, in order to find minimum genus embeddings for certain families of graphs it turns out to be useful to study embeddings of other families of graphs in which the faces are large. In particular, we study embeddings in which the boundary of every face is a hamilton cycle, a cycle that goes through every vertex. In this talk we survey what is known about hamilton cycle embeddings of graphs, including our recent results with Justin Schroeder that use latin squares and algebraic construction techniques (voltage graphs).

Many of the results discussed are from joint projects with Justin Schroeder, Chris Stephens, Adam Weaver and Xiaoya Zha. (Received September 05, 2013)