1145-05-818 **Beifang Chen**, **Mark Ellingham*** (mark.ellingham@vanderbilt.edu), **Nora Hartsfield**, **Serge Lawrencenko**, **Wenzhong Liu**, **Hui Yang**, **Dong Ye** and **Xiaoya Zha**. *The even-faced genus of complete graphs and the Even Map Color Theorem.*

The well-known Map Color Theorem extends the Four Color Theorem by providing a sharp bound for the chromatic number of a graph embeddable in a given surface. The bound was found by Heawood in 1890, but it took another 78 years to find all of the sharpness examples, using minimum genus embeddings of complete graphs. In 1975 Joan Hutchinson showed that a graph with an embedding in a given surface with all faces of even degree satisfies a stronger bound on its chromatic number. We have recently determined the minimum genus, both orientable and nonorientable, of embeddings of complete graphs in which all faces have even degree. These embeddings, and embeddings derived from them, provide sharpness examples for Hutchinson's bound except for a couple of surfaces of small genus. Thus, we now have a sharp Even Map Color Theorem. (Received September 15, 2018)