

1096-AE-1737 **Joan P Hutchinson*** (hutchinson@macalester.edu), Department of Mathematics, Macalester College, Saint Paul, MN 55105. *Coloring graphs on surfaces, contrasted with coloring on the plane*. Preliminary report.

The celebrated Four Color Theorem and Thomassen's 5-list Coloring Theorem for graphs on the plane point the way to other coloring questions on the plane and, even more, to such questions about graphs embedded on nonplanar surfaces. For example, what happens when some vertices of a graph are precolored or when some vertices receive lists of smaller size? Such questions are often much harder to answer on the plane than on nonplanar surfaces. And what happens when the two points of view are combined by considering "locally planar" graphs on surfaces (that is, graphs embedded on nonplanar surfaces with all noncontractible cycles sufficiently long so that locally they appear to be planar)? To what extent do these locally planar graphs exhibit coloring properties of planar graphs or of nonplanar graphs? We will discuss these questions with lots of colorful graphics. (Received September 16, 2013)