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Jeffrey Manning* (jmanning@caltech.edu), MSC 658, California Institute of Technology, 1200 E. California Blvd., Pasadena, CA 91126. *Distinguishing Chromatic Numbers of Planar Maps.*

A map is an embedding of a simple graph in a closed surface. The distinguishing chromatic number, $\chi_D(M)$, of a map M is the minimal number of colors needed to color the vertices of M so that no two adjacent vertices receive the same color, and no nontrivial automorphism of M fixes the coloring. We classify all planar maps M with $\chi_D(M) \geq \chi(M) + 2$. As a Corollary of this, we show that $\chi_D(M) \leq 5$ for all planar maps M , with two exceptions. Also, using the faithfulness of planar embeddings of 3-connected planar graphs, we complete the classification of 3-connected planar graphs G with $\chi_D(G) \geq \chi(G) + 2$. (Received August 28, 2011)