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45435. *Cellular automorphisms of the torus and Klein bottle*. Preliminary report.

A cellular automorphism of a graph  $G$  imbedded in surface  $S$  is an automorphism of the graph that takes facial boundary walks to facial boundary walks. In this talk we will discuss a list of cellular automorphisms of graphs in the torus and Klein bottle and how any cellular automorphism of a graph in one of these surfaces reduces to one in the list. We will also discuss some applications. (Received August 10, 2010)