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(ellen.gethner@ucdenver.edu). *The Thickness and Chromatic Number of  $r$ -Inflated Graphs.*

A graph has thickness  $t$  if the edges can be decomposed into  $t$  and no fewer planar layers. We study one aspect of a generalization of Ringel's famous Earth-Moon problem: what is the largest chromatic number of any thickness-2 graph? In particular, given a graph  $G$  we consider the  $r$ -inflation of  $G$  and find bounds on both the thickness and the chromatic number of the inflated graphs. In some instances the best possible bounds on both the chromatic number and thickness are achieved. We end with several open problems. (Received March 29, 2010)