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**Ryan C Bunge\*** (rc\_bunge@hotmail.com), Mathematics Department, Illinois State University, Normal, IL 61790-4520, and **Avapa Chantasartrassmee, Saad El-Zanati** and **Charles Vanden Eynden**. *On graph labelings and cyclic  $G$ -designs.*

A labeling (or valuation) of a graph  $G$  is an assignment of integers to the vertices of  $G$  subject to certain conditions. A hierarchy of graph labelings was introduced by Rosa in the late 1960s. Rosa showed that certain basic labelings of a graph  $G$  with  $n$  edges yielded cyclic  $G$ -decompositions of  $K_{2n+1}$  while other stricter labelings yielded cyclic  $G$ -decompositions of  $K_{2nx+1}$  for all natural numbers  $x$ . Until recently, labelings of the latter type were defined only for bipartite and almost-bipartite graphs. We introduce two new labelings for tripartite graphs and show that if a graph  $G$  with  $n$  edges admits either of these labelings, then there exists a cyclic  $G$ -decomposition of  $K_{2nx+1}$  for every positive integer  $x$ . We also report on classes of tripartite graphs that admit these labelings. (Received September 22, 2010)