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**Jay S. Bagga\*** (jbagga@bsu.edu), Department of Computer Science, Ball State University,  
Muncie, IN 47306. *On Graceful Labelings of Cycles.*

Suppose that  $G$  is a connected graph with  $n$  vertices and  $m$  edges. A vertex labeling  $f : V(G) \rightarrow \{0, 1, 2, \dots, m\}$  such that distinct vertices have distinct labels induces an edge labeling where an edge  $xy$  gets the label  $|f(x) - f(y)|$ . If the edges are labeled  $1, 2, \dots, m$  then the labeling is called *graceful*. In 1967, Rosa proved that a cycle  $C_n$  has a graceful labeling if and only if  $n \equiv 0$  or  $n \equiv 3 \pmod{4}$ .

We present algorithms for generating graceful labelings of such cycles and some related graphs. We also present some new properties and generalizations of such graceful labelings. (Received July 25, 2008)