

1058-05-133

**Todd G Will\*** ([will.todd@uwlax.edu](mailto:will.todd@uwlax.edu)) and **Futaba Okamoto**. *Computing the Modular Chromatic Number of Trees.*

A modular  $k$ -coloring of a graph  $G$  without isolated vertices is a coloring of the vertices of  $G$  with the elements in  $\mathbb{Z}_k$  having the property that for every two adjacent vertices in  $G$  the sums of the colors of their neighbors are different in  $\mathbb{Z}_k$ . The minimum  $k$  for which  $G$  has a modular  $k$ -coloring is the modular chromatic number  $\text{mc}(G)$  of  $G$ . It is known that  $2 \leq \text{mc}(T) \leq 3$  for every nontrivial tree  $T$ . We present an efficient algorithm that computes the modular chromatic number of a given tree. (Received February 11, 2010)