

1023-05-1512

**Brent N Stephens\*** (bns2w@mtsu.edu) and **Xiaoya Zha** (xzha@mtsu.edu). *Enumeration of Orientable Embeddings of Odd Graphs.*

The "Odd Graph"  $O_{k+1}$  is the graph whose vertex set is the set of all  $k$ -subsets of  $\{1, 2, \dots, 2k+1\}$  such that two vertices are adjacent precisely when their corresponding  $k$ -sets are disjoint. In this talk we enumerate all orientable embeddings of the Odd Graph  $O_{k+1}$ . The enumeration is accomplished by applying a method detailed by Mull, Rieper, and White (1988). The main idea is to count equivalence classes of embeddings of  $G$ , under action by the automorphism group of  $G$ . Burnside's Lemma is the main group-theoretic tool used for the computation. In the case we consider, where  $G$  is the Odd Graph  $O_{k+1}$ , the automorphism group is particularly nice. Namely, it is isomorphic to the symmetric group  $S_{2k+1}$ . (Received September 26, 2006)