1044-05-25 **Robert A. Beeler*** (beelerr@etsu.edu), Department of Mathematics, ETSU, P.O. Box 70663, Johnson City, TN 37614, and **Robert E. Jamison** (rejam@clemson.edu). *Automorphic Decompositions of Graphs.*

A *decomposition* D of a graph H by a graph G is a partition of the edge set of H such that the subgraph induced by the edges in each part of the partition is isomorphic to G. The *intersection graph* $I(D)$ of the G-decomposition D has a vertex for each block of the partition and two blocks A and B are adjacent iff they share a common node in H. If $I(D) \cong H$ we say that D is an *automorphic decomposition* of H. In this paper we will give several examples of automorphic decompositions as well as necessary conditions for their existence. These will be used to determine which graphs can be used to host an automorphic decomposition. (Received July 01, 2008)