

1125-VF-1946 **Zhenming Bi*** (zhenming.bi@wmich.edu). *Rainbow Hamiltonian-Connected Graphs*.

A graph G is Hamiltonian-connected if every pair of vertices of G are connected by a Hamiltonian path that contains every vertex of G . A graph is edge-colored if each of its edges is assigned a color (where adjacent edges can be assigned the same color). A path P in an edge-colored graph is a rainbow path if no two edges of P are colored the same. An edge coloring of a Hamiltonian-connected graph G is a Hamiltonian-connected rainbow coloring if every two vertices of G are connected by a rainbow Hamiltonian path. The minimum number of colors in a Hamiltonian-connected rainbow coloring of G is the rainbow Hamiltonian-connection number $hrc(G)$ of G . If G has order n and size m , then $n - 1 \leq hrc(G) \leq m$. The rainbow Hamiltonian-connection number is investigated for the Cartesian product of complete graphs and of odd cycles with K_2 . As a result of this, both the lower bound $n - 1$ and the upper bound m for $hrc(G)$ are shown to be sharp. Several results and open questions are presented in this area of research. (Received September 19, 2016)