Meeting: 999, Nashville, Tennessee, SS 14A, Special Session on Graph Theory and Matroid Theory

999-05-242 **Roman Čada** and **Evelyne Flandrin*** (fe@lri.fr), LRI, Bât 490, Université Paris-Sud, 91405 Orsay Cedex, France, and **Hao Li**. *Hamiltonicity of generalized prisms.*

Given two graphs G and H, the cartesian product $G\Box H$ is defined as the graph with vertex set $V(G) \times V(H)$ and the edge $((u_1, v_1), (u_2, v_2))$ is present in the product whenever $u_1 = u_2$ and v_1v_2 is an edge in H or symmetrically $v_1 = v_2$ and u_1u_2 is an edge in G.

By P_t we mean a path on t vertices. Similarly, C_t is a cycle on t vertices.

The prism of a graph G is the cartesian product $G\Box P_2$.The well known Barnette's conjecture says that all simple 4-polytopes are hamiltonian; in direction of this conjecture, many results on hamiltonian cycles in prisms have been obtained, for example P. Paulraja proved that the prism of any 3-connected cubic graph is hamiltonian.

Motivated by the study of hamiltonian cycles in prisms, we are interested in hamiltonicity of the "generalized prisms" of a graph G, i.e. the graphs $G\Box P_t$ and $G\Box C_t$ for any positive integer t.

We give sufficient conditions for hamiltonicity of those generalised prisms in the special cases when G is a tree and when G is a cactus or a generalized cactus. A common assumption for all those sufficient conditions is that the maximum degree of G is at most $\frac{1}{2}(t+2)$. (Received August 24, 2004)