Guantao Chen* (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, Katshiro Ota, Department of Mathematics, Keio University, Yokohama, Japan, and Akira Saito, Department of Computer Science and, and System Analysis, Nihon University, Tokyo, Japan. Hamiltonian Cycles with small even chords. Preliminary report.

Let $G$ be a graph. A hamiltonian cycle $C = v_1v_2 \cdots v_nv_1$ is called a square hamiltonian cycle if $v_iv_{i+2} \in E(G)$ for all $i = 1, 2, \cdots, n$. If a graph has a square hamiltonian cycle then $G$ is pancyclic and contains different all 2-factor. Sufficient degree conditions for square hamiltonian cycles have been intensively studied. A hamiltonian cycle $v_1v_2 \cdots v_nv_1$ is called an even square hamiltonian cycle if $v_iv_{i+3} \in E(G)$ for all $i = 1, 2, \cdots, n$. We show that for any $\epsilon > 0$, there is an $N$ such that if $G$ is a graph of order $n > N$ such that $\delta(G) > (1/2 + \epsilon)n$, then $G$ contains an even square hamiltonian cycle. (Received September 28, 2004)