1067-05-2413 **Guantao Chen*** (gchen@gsu.edu), Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303, **Manzhan Gu**, Department of Applied Mathematics, Shanghai University of Finance and Economics, Shanghai, Peoples Rep of China, and **Nana Li**, Department of Mathematics and Statistics, Georgia State University, Atlanta, GA 30303. *On Maximum Cuts of Connected Digraphs.* Preliminary report.

Let $D = (V, E)$ be a digraph with a vertex set V and an edge set E. A set $C \subseteq E$ is called a directed cut of D if there is a partition (X, Y) of V such that $C = \{\vec{xy} \in E \ : \ x \in X \text{ and } y \in Y\}$, that is, C consists of all directed edges from X to Y . Let $D(1, 1)$ denote the set of digraphs D such that for each vertex v either $d^+(v) \leq 1$ or $d^-(v) \leq 1$, where $d^+(v)$ and $d^-(v)$ are the outdegree and indegree of v, respectively. Clearly, all digraphs with maximum degree at most 3 are in $D(1, 1)$. We show that every connected graph of m edges in $D(1, 1)$ contains a directed cut of size at least $(3/8)m - 1/8$, which provides a positive answer to a problem of Lehel, Muffray and Presissman. We also give a negative answer to their another problem: If a connected digraph $D \in D(1, 1)$ with m edges contains no directed triangles and has s vertices v with $d^+(v) \cdot d^-(v) = 0$, then D contains a directed cut of size at least $(2m + s)/5$. (Received September 23, 2010)