1077-05-1924 **Senmei Yao*** (smyao@math.wvu.edu), 320 Armstrong Hall, P.O.Box 6310, Morgantown, WV 26505. *Group Connectivity in Line Graphs.*

Tutte introduced the theory of nowhere zero flows and showed that a plane graph G has a face k-coloring if and only if G has a nowhere zero A-flow, for any Abelian group A with $|A| \geq k$. In 1992 Jaeger et al extended nowhere zero flows to group connectivity of graphs: given an orientation D of a graph G, if for any $b : V(G) \mapsto A$ with $\sum_{v \in V(G)} b(v) = 0$, there always exists a map $f : E(G) \mapsto A - \{0\}$, such that at each $v \in V(G)$,

$$\sum_{e=vw \text{ is directed from } v \text{ to } w} f(e) - \sum_{e=uv \text{ is directed from } u \text{ to } v} f(e) = b(v)$$

in A, then G is A-connected. Let Z_3 denote the cyclic group of order 3. Jaeger et al conjectured that every 5-edge-connected graph is Z_3-connected. We proved the following:

(i) Every 5-edge-connected graph is Z_3-connected if and only if every 5-edge-connected line graph is Z_3-connected.

(ii) Every 6-edge-connected triangular line graph is Z_3-connected.

(iii) Every 7-edge-connected triangular claw-free graph is Z_3-connected.

In particular, every 6-edge-connected triangular line graph and every 7-edge-connected triangular claw-free graph have a nowhere zero 3-flow. (Received September 21, 2011)