999-05-238   **Xujin Chen** and **Xingxing Yu*** (`yu@math.gatech.edu`), Atlanta, GA 30332-0160, and **Wenan Zang**. *Bonds in graphs.*

Given a connected multigraph G and three nonempty even-sized subsets A, B, C of $V(G)$, when does G have two disjoint connected subgraphs G_1 and G_2 such that $V(G_1) \cup V(G_2) = V(G)$, and $|V(G_1) \cap A|$, $|V(G_1) \cap B|$, and $|V(G_1) \cap C|$ are all odd? This problem was solved by Chakravarti and Robertson in 1979 for the special case where $|A| = |B| = |C| = 2$, which is a variation of a result on disjoint paths proved independently by Seymour, Shiloach, and Thomassen. Recently, we solved this problem completely. Our solution implies a polynomial time algorithm for recognizing such graphs. (Received August 24, 2004)