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Lynne L. Doty* (lynne.doty@marist.edu), Mathematics Department, Marist College, 3399 North Road, Poughkeepsie, NY 12601. *Some Useful Techniques for Bounding Neighbor Connectivity in Abelian Cayley Graphs preliminary report*. Preliminary report.

For the notion of neighbor connectivity in graphs, whenever a vertex is "subverted" the entire closed neighborhood of the vertex is deleted from the graph. The minimum number of vertices whose subversion results in an empty, complete, or disconnected subgraph is called the neighbor connectivity of the graph. Gunther, Hartnell, and Nowakowski have shown that for any graph, neighbor connectivity is bounded above by κ . Recently Doty has shown that neighbor connectivity is bounded above by $\approx \delta/2$ for abelian Cayley graphs. A key step in establishing the tighter bound for abelian Cayley graphs uses a new graph whose vertices correspond to the generators of the Cayley graph. If this new graph, called the auxiliary graph, contains vertices of small degree, the effective subversion strategy for the original Cayley graph is considerably lower than the bound. This talk will look at properties of Cayley graphs whose auxiliary graphs have vertices with small degree. (Received February 06, 2007)