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**Mary K Flagg\*** ([flaggm@stthom.edu](mailto:flaggm@stthom.edu)), 3800 Montrose, Houston, TX 77006. *Rigid linkage forcing and eigenvalue multiplicities.*

Zero forcing was introduced as an upper bound on the maximum multiplicity of an eigenvalue of a symmetric matrix determined by a graph. Partial zero forcing, or forcing without coloring the whole graph, potentially provides information on the multiplicities of all the eigenvalues. Partial zero forcing is generalized and connected to vital linkages in the rigid linkage forcing process. The rigid linkage forcing process produces rigid linkages, and spanning rigid linkages are vital linkages, and also determined by a standard zero forcing process. However, when not spanning, rigid linkages, and related rigid shortest linkages give a lower bound on the number of distinct eigenvalues of a graph, or more generally the number of eigenvalues of multiplicity at least  $i$ . In this talk i will explain the rigid linkage forcing process and show that it is a useful tool in the study of the inverse eigenvalue problem for a graph. (Received September 13, 2020)