

1041-05-141

Marni Mishna and **Nancy Ann Neudauer*** (nancy@pacificu.edu), Dept of Mathematics and Computer Science, Pacific University, 2043 College Way, Forest Grove, WA 97116, and **Brett Stevens**. *Enumeration opens the door: revealing the structure of the graph by counting bases of two matroids.*

Two matroids are commonly defined on a graph: the familiar cycle matroid and the exotic bicircular matroid. The bases of the cycle matroid are the spanning trees of the associated graph; the bases of the bicircular matroid are all subgraphs of the graph, each of whose connected components contain exactly one cycle and (possibly) other edges.

We enumerate the bases of the bicircular matroid for several classes of graphs. For a given graph, usually there are more bases of the bicircular matroid than of the cycle matroid. We ask when these numbers are the same. We also consider when there are more bases of the cycle matroid, and what this translates to in terms of the structure of the graph. (Received August 08, 2008)