

1106-05-2245

Simon D Pfeil* (spfeil2@lsu.edu), **James Oxley**, **Charles Semple** and **Geoff Whittle**.

Matroids with many small circuits and many small cocircuits. Preliminary report.

A consequence of Tutte's Wheels-and-Whirls Theorem is that the only 3-connected matroids in which every element is in both a 3-element circuit and a 3-element cocircuit are the well-known wheels and whirls. Miller showed that a sufficiently large 3-connected matroid in which every pair of elements is contained in a 4-element circuit and a 4-element cocircuit must belong to another well-known family, namely spikes. This talk will consider several variants on these two results. (Received September 16, 2014)