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Max Douglas Wakefield* (wakefiel@usna.edu), 572-C Holloway Rd, Department of Mathematics, US Naval Academy, Annapolis, MD 21402. *Flag incidence algebras*. Preliminary report.

For any locally finite poset (P, \leq) the classical incidence algebra is the set of functions from $P \times P$ to some ring R that are zero on incomparable elements. We consider instead functions from P^n for $n > 2$ to some ring R that are zero on non-flag (or non-chain) sequences of elements. Using these flag incidence algebras one can define generalized Möbius functions, Whitney numbers, characteristic polynomials, and so on. Then we develop some formulas with these generalized Whitney numbers. This leads to some formulas for certain coefficients of the so called matroid Kazhdan-Lusztig polynomials. (Received January 31, 2016)