1023-05-1090 **Sandra Kingan*** (sandrakingan@clayton.edu), Department of Mathematics, 2000 Clayton State Blvd, Morrow, GA 30260. *Stabilizers for matroids over finite fields.*

Two GF(q)-representable matroids M(A) and M(B) may be isomorphic as matroids, but there may be no way of obtaining matrix A from matrix B by applying elementary row operations, column permutations, or field automorphisms. In this case, we say A and B are inequivalent representations of the same matroid. A connected simple GF(q)-representable matroid stabilizes its simple single-element extensions (or cosimple single-element coextensions) over GF(q) if none of them have any more inequivalent representations than the matroid itself. We present a computational approach to equivalence and strong equivalence. Using this approach and Whittle's Stabilizer Theorem we find some small size uniquely representable stabilizers for GF(5). We also give an easy proof of Oxley, Vertigan, and Whittle's result: the 5-point line is a stabilizer for GF(5)-representable matroids. Based on insights from the computational approach, we give sufficient conditions for a rank 3 simple GF(q)-representable matroid to stabilize its simple extensions and cosimple coextensions. We prove that a rank 3 simple GF(q)-representable matroid with at least 2q+1 elements stabilizes its simple extensions over GF(q) and certain types of its cosimple coextensions over GF(q). This is joint work with Robert Kingan. (Received September 25, 2006)