

1094-03-261

Karen Lange (klange2@wellesley.edu), **Russell Miller*** (russell.miller@qc.cuny.edu)
and **Rebecca Steiner** (rebecca.m.steiner@vanderbilt.edu). *Effective classification of
computable structures.*

The paradigm of a *computable classification* is the Friedberg enumeration. Friedberg produced a uniformly computable listing of all computably enumerable sets, with no set appearing more than once in the listing. That is, he gave a computable classification of the c.e. sets up to set equality. We apply his method to yield a computable classification, up to (classical) isomorphism, of the computable algebraic fields: a uniformly computable presentation listing all such fields, with no isomorphism between any two of them. We also follow Goncharov and Knight in showing that certain other classes have no computable classification.

Finally, we give a $\mathbf{0}'$ -computable classification of the computable equivalence structures. This result, which extends more work of Goncharov and Knight, means that there is a uniformly $\mathbf{0}'$ -computable listing of all computably presentable equivalence structures, with no isomorphism between any two structures on the list; however, the structures on the list are only $\mathbf{0}'$ -computable, not necessarily computable. We conjecture that there is no computable classification of the computable equivalence structures. (Received August 26, 2013)