

1075-03-153

Valentina Harizanov* (harizanv@gwu.edu), Department of Mathematics, Washington, DC
20052. *Computability theoretic complexity of isomorphisms of countable structures.*

The study of computability in algebraic constructions started with Fröhlich and Shepherdson and with Rabin in the 1950s. They showed that when the original data are presented in a computable way, some constructions are algorithmic, while the others can be modified to become algorithmic, or cannot be done algorithmically in principle. We will focus on the complexity of isomorphisms of countable structures. Not all computable isomorphic structures are computably isomorphic or even limit computably isomorphic. Those that are computably isomorphic (limit computably isomorphic) are called computably categorical (limit computably categorical). We will characterize computable structures from some familiar classes of algebraic structures, which are computably categorical or limit computably categorical. The complexity of isomorphisms of structures that are not limit computably categorical can be further measured within the arithmetical or the hyperarithmetical hierarchy. (Received August 28, 2011)