1147-03-813 **Valentina Harizanov***, Department of Mathematics, Washington, DC 20052. *Complexity of problems in computable structure theory.*

We will present a variety of problems in computable structure theory and calculate their exact complexity. Some of these problems arise in connection with the isomorphism relation, with computability-theoretic categoricity, or various properties of structures. Our approach involves the notion of an index set. An index for a computable structure M is the code of a Turing machine that computes the characteristic function of the atomic diagram of M. The *index set* of a structure A is the set $I(A)$ of all indices for computable isomorphic copies of A. For a class K of structures, closed under isomorphism, the *index set* is the set $I(K)$ of all indices for computable members of K.

In order to measure complexity of structures, one of the main strategies is to find an optimal description of the class of structures under investigation. This often requires the use of various algebraic properties of the structures. To prove the sharpness of our description, we use the notion of *many-one reduction*. The complexity is often expressed using arithmetical sets or their differences. (Received January 29, 2019)