1163-03-1081 **Valentina Harizanov*** (harizanv@gwu.edu), Department of Mathematics, George Washington University, Washington, DC 20052. *On the isomorphism problem.* Preliminary report.

Isomorphism is one of the most important equivalence relations between structures for the same language. For certain natural algebraic classes $\mathcal{K}$, we determine the exact complexity of the isomorphism problem for its computable members. More precisely, the *computable isomorphism problem* for a class $\mathcal{K}$ of structures, closed under isomorphism, is the set of pairs of effective codes (computable indices) for computable structures in $\mathcal{K}$, which are isomorphic. We focus on classes that have Σ^1_1-complete computable isomorphism problem, which is of maximal complexity. These classes have isomorphic structures that are not hyperarithmetically isomorphic. Each of these classes also has a structure M with two tuples of elements of the same length, $\bar{a}$ and $\bar{b}$, such that $(M, \bar{a})$ and $(M, \bar{b})$ are isomorphic but not hyperarithmetically isomorphic. The method we use is based on uniform effective interpretations of computable binary relations into computable structures from the corresponding classes. This is joint work with S. Lempp, A. Morozov, C. McCoy and R. Solomon. (Received September 14, 2020)