

- ▶ SVETLANA ALEKSANDROVA, NIKOLAY BAZHENOV, *On Σ_n^0 -classifications.*
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In this talk we will discuss the algorithmic complexity of Σ_n^0 -classifications of relations on computable structures.

The notion of classification has developed from the notion of Friedberg enumeration. S. Goncharov and J. Knight [1] considered Friedberg enumerations of classes of structures of some algorithmic complexity. They introduced classification for a class K as a list of structures from K that determines each element of K up to isomorphism, or other equivalence.

This approach can also be used to study classifications of relations on computable structures. Σ_n^0 -classification here means a classification of relations defined in the said structure by Σ_n^0 -formulae. S. Goncharov and N. Kogabaev in [2] have presented an example of a computable structure without computable Σ_1^0 -classification of all unary Σ_1^0 -relations. We give a generalisation of this result.

In particular, we show that, while for a given computable structure \mathfrak{M} there is $0^{(n)}$ -computable Σ_n^0 -classification, for every n one can construct a structure with no $0^{(n-1)}$ -computable Σ_n^0 -classifications.

[1] S. S. GONCHAROV, J. F. KNIGHT, *Computable structure and non-structure theorems*, **Algebra and Logic**, (2002), vol. 41, no. 6, pp. 351–373.

[2] GONCHAROV, S. S., KOGABAEV N.T., *On Σ_1^0 -Classification of Relations on Computable Structures (Russian)*, **Vestn. Novosib. Gos. Univ., Ser. Mat. Mekh. Inform.**, (2008), vol. 8, no. 4, pp. 23–32.