**Title:**
Structural properties of Rogers semilattices.

**Abstract:**
Arbitrary numbering of a countable class is a mapping that assigns natural indices to all elements of this class. Goncharov and Sorbi offered a general approach for studying classes of objects which admit a constructive description in formal languages with a Gödel numbering for formulas [2]. According to their approach, numbering is computable if there exists a computable function for every object and each index of this object in numbering produces some Gödel index of its constructive description. Therefore, an index of the object relative to any computable numbering can be considered as its constructive description. Rogers semilattice is a quotient structure of all computable numberings of the family modulo equivalence of the numberings ordered by the relation induced by the reducibility of numberings. It allows one to measure computations of a given family and is used also as a tool to classify properties of computable numberings for different families. In this talk, we will show some recent results on structural properties of Rogers semilattices in the different hierarchies and different reducibility of numberings. We will compare their algebraic properties.
The talk is based on joint works with Bazhenov, Ospichev, and Yamaleev.

**References:**
[1] Yu. L. Ershov, Theory of numberings, Nauka, Moscow, 1977. -416 p. [In Russian].
[2] S. S. Goncharov, A. Sorbi, Generalized computable numerations and nontrivial Rogers semilattices, Algebra Logic, 36:6 (1997), 359–369.