Department of Mathematics, BGU

Colloquium

On *Tuesday, June ,9 2026*

At *14:30 – 15:30*

In *Math 101-*

Grigory Mashevitsky (BGU)

will talk about

Inclusive (universal positive) theory of Abelian groups

Abstract: Model theory of Abelian groups is extensively studied in the literature also in recent years. An identical inclusion is a formula that can be expressed as a (possibly infinitary) disjunctive identity u = v1 ∨ u = v2 ∨ u = v3 ∨ . . . , or, equivalently, as a universally closed identical equality of subsets of words (terms). For groups and rings, the classes defined by identical inclusions and by infinitary disjunctive identities are coincide, for semigroups they do not coincide. A class of algebras defined by a set of identical inclusions is called an inclusive variety. An inclusive variety that can not be defined by first order formulas is called a nonelementary inclusive variety. An inclusive variety defined by a system of identical inclusions - each depending on a finite set of variables - is called a quasielementary inclusive variety.

We describe elementary, nonelementary and quasielementary inclusive varieties of Abelian groups. There exist continuum many inclusive varieties of each of these kinds. We also determine Abelian groups defined by identical inclusions up to isomorphism and classfiy Abelian groups up to inclusive equivalence.