

СЕМИНАР

„АЛГЕБРА И ЛОГИКА”

Драги колеги,

Следващото заседание на семинара ще се проведе на 28 септември 2018 г. (петък) от 13:00 часа в зала 578 на ИМИ – БАН.

Доклад на тема

The strongly invariant extending property for abelian groups

ще изнесе Петър Данчев.

Поканват се всички желаещи.

От секция „Алгебра и логика” на ИМИ – БАН

<http://www.math.bas.bg/algebra/seminarAiL/>

Abstract

Introduction: In 2001, the outstanding mathematician Laszlo Fuchs et al. studied in *Commun. Algebra* the so-called *fully invariant extending property* for abelian groups and modules, which concept arises quite naturally from the well-known classical definition of a fully invariant subgroup.

Definition 1. A subgroup H of an abelian group G is said to be *fully invariant* if $f(H) \leq H$ for any endomorphism $f: G \rightarrow G$.

This can be curiously strengthened to the following notion.

Definition 2. A subgroup S of an abelian group G is said to be *strongly invariant* if $\varphi(S) \leq S$ for any homomorphism $\varphi: S \rightarrow G$.

Clearly, strongly invariant subgroups are fully invariant as well as fully invariant direct summands are strongly invariant subgroups.

We thus come to

Main Definition. We shall say that a group G possesses *the strongly invariant extending property* (*si-extending property* for short) if every strongly invariant subgroup is contained as an essential subgroup in a direct summand of G .

Results: The following two statements are proved.

Theorem 1. *A direct summand of a group having the si-extending property is also a group with the si-extending property.*

Theorem 2. *A group G has the si-extending property if, and only if, $G = A \oplus B \oplus C$, where A is a torsion group, B is a torsion-free group and C is a divisible group, each of which retains the si-extending property.*

The used technique for proofs exploits homological algebra and some variations of set theory.

This is a joint work with A.R. Chekhlov (Tomsk State Univ., Russia) and will be published in *Quaestiones Mathematicae* (2019).