СЕКЦИЯ

„АЛГЕБРА И ЛОГИКА”

Драги колеги,
На 28 март 2025 г. (петък) от 13:00 часа в зала 578 на ИМИ-БАН и онлайн чрез платформата zoom ще се проведе хибридно заседание на семинара по „Алгебра и логика”.
Доклад на тема

Graded algebras that are the sum of two homogeneous subalgebras

ще изнесе

Plamen Koshlukov (State University of Campinas, Brazil).

От секция „Алгебра и логика” на ИМИ – БАН

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

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Abstract:

Let A be an algebra over a field F, graded by a group G, and let B and C be two homogeneous subalgebras of A such that $A=B+C$. We study the following problem: If B and C satisfy graded identities, does the same also hold for A?

The analogous problem for algebras without any grading was proposed in 1994 by Beidar and Mikhalev; in implicit form it appeared in a paper by O. Kegel, in 1963. Several particular cases were considered in a series of papers by various authors. In 2016, Kępczyk gave an affirmative answer to this problem (without grading).

We show that if B and C satisfy graded identities, and also B is a (one-sided) ideal of A then $A=B+C$ also satisfies graded identities. We also

study the situation where A satisfies specific graded semi-identities. In this case, if C satisfies some graded identity in neutral variables, we show that A satisfies graded identities. We also find upper bounds for the degrees of such identities. Here we use methods that go back to the classical Regev theorem on the growth of the codimensions of an associative algebra.

Finally we exhibit an example that shows that the graded version of the Kępczyk theorem is no longer valid.

This is a joint work with P. S. Fagundes.