СЕКЦИЯ

„АЛГЕБРА И ЛОГИКА"

Драги колеги,

На 28 януари 2022 г. (петък) от 13:00 часа ще се проведе дистанционно заседание на семинара по „Алгебра и логика". Доклад на тема

Bicommutative algebras from commutative point of view

ще изнесе Веселин Дренски.

Семинарът ще се проведе посредством платформата **Zoom** и всеки желаещ може да се присъедини като последва линка, зададен на страницата на семинара.

<div align="right">

От секция „Алгебра и логика" на ИМИ – БАН

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

</div>

===

Abstract

The nonassociative algebra R is right-commutative if

$$(ab)c = (ac)b \text{ for all } a,b,c \text{ in } R,$$

R is left-commutative if

$$a(bc) = b(ac) \text{ for all } a,b,c \text{ in } R.$$

Bicommutative algebras are algebras which are both left- and right-commutative. One-sided commutative algebras appeared for the first time in a paper by Cayley in 1857. Their important subclass of Gelfand-Dorfman-Novikov algebras were studied by Gelfand and Dorfman for the needs of the Hamiltonian operator in finite-dimensional mechanics and by Balinskii and Novikov in relation with the equations of hydrodynamics.

Dzhumadil'daev, Ismailov and Tulenbaev described the free bicommutative algebra and in the case of characteristic 0 determined the main parameters needed in the study of varieties of bicommutative algebras.

They proved that the square F^2 of the free bicommutative algebra F is a commutative associative algebra. This idea was further explored by the speaker and Zhakhayev who applied classical methods of commutative algebra in the study of bicommutative algebras.

Recently Yuxiu Bai, Yuqun Chen and Zerui Zhang have established that the ideals of finitely generated free bicommutative algebras have finite Gröbner-Shirshov bases. In this way they have demonstrated the power of the methods of Shirshov for the study of ideals of nonassociative algebras. Bai, Chen and Zhang also have shown the integrality of the Gelfand-Kirillov dimension of finitely generated bicommutative algebras.

Once results are established it is natural to search for new proofs and further generalizations. The idea of the talk is to show that many results for bicommutative algebras can be obtained with well known results in commutative algebra. Additionally this approach allows the usage of popular computer packages for calculations with bicommutative algebras.