

СЕКЦИЯ

„АЛГЕБРА И ЛОГИКА”

Драги колеги,

На 21 май 2021 г. (петък) от 16:00 часа ще се проведе дистанционно заседание на семинара по „Алгебра и логика”.

Доклад на тема

Group gradings on incidence algebras

ще изнесе

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

От секция „Алгебра и логика” на ИМИ – БАН

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

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Abstract

This is a joint work with Felipe Y. Yasumura and Jonathan P. Souza.

The main goal of this talk is presenting the classification of group gradings on incidence algebras as obtained in [2]. To do so, we start by defining incidence algebras and emphasizing their resemblances and differences relative to the algebra of upper triangular matrices. We recall the classification of group gradings on the algebra of upper triangular matrices with entries in a field obtained by Di Vincenzo, Koshlukov and Valenti in [1] and generalized in [3] by Valenti and Zaicev. Then we present some examples to show that a similar result cannot be true in the general context of incidence algebras. Since good and elementary gradings play a major role in the classification of group gradings in the case of upper triangular matrices, we present the natural generalization

of those concepts in the context of incidence algebras (and even in more general contexts than that of matrix algebras). Since it is impossible, due to time, to present the proofs of the lemmas used to obtain the main result in a level of details necessary to understand them completely, we decided to describe how we were led to those lemmas, believing that, with that approach, the attendants can get more intuition about the situation we dealt with and, consequently, they may be more interested in studying incidence algebras (or group gradings on algebras), beyond the problem presented in our talk, in the future.

- [1] O.M. Di Vincenzo, P. Koshlukov, A. Valenti, Gradings on the algebra of upper triangular matrices and their graded identities, *J. Algebra* 275(2) (2004) 550–566.
- [2] E.A. Santulo Jr., J.P. Souza, F.Y. Yasumura, Group gradings on finite dimensional incidence algebras, *J. Algebra* 544 (2) (2020) 302–328.
- [3] A. Valenti, M.V. Zaicev, Group gradings on upper triangular matrices, *Arch. Math.* 89(1) (2007) 33–40.