

# Diskrētā matemātika / Discrete mathematics



82. Latvijas Universitātes  
starptautiskā zinātniskā  
konference 2024

## Report of Contributions

Contribution ID: 1

Type: **Oral presentation**

# **A generalization of differences and connections to weak BCK-algebras**

*Wednesday, 14 February 2024 15:35 (30 minutes)*

We investigate conditions under which a poset equipped with a weak difference gives rise to a weak BCK-algebra whose subtraction operation coincides with the weak difference for comparable elements.

## **Keywords**

## **Acknowledgements**

**Primary author:** KREMERE, Insa

**Presenter:** KREMERE, Insa

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics

Contribution ID: 3

Type: **Oral presentation**

# Examples (Analysis) of Non-Classical Games in Combinatorial Geometry

*Wednesday, 14 February 2024 14:05 (30 minutes)*

Some games using polyforms (pentominoes, hexiamonds) are considered.

## Keywords

## Acknowledgements

**Primary author:** CIBULIS, Andrejs

**Presenter:** CIBULIS, Andrejs

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics

Contribution ID: 4

Type: **Oral presentation**

# Families of Perfect Polyiamonds as Formal Languages

*Wednesday, 14 February 2024 15:05 (30 minutes)*

We study  $n$ -polyiamonds with the restriction: Their sides lengths are all numbers between 1 and  $n$  in this order. Each polyiamond has a unique encoding in a 6-letter alphabet. We study formal grammars to describe interesting families of such polyiamonds.

## Keywords

polyiamond area regex CFG grammar

## Acknowledgements

We are grateful to Andrejs Cibulis for introducing this problem to us and making many valuable suggestions.

**Primary author:** APSĪTIS, Kalvis (University of Latvia)

**Co-author:** Ms RUDZĀTE, Marta (University of Latvia)

**Presenter:** APSĪTIS, Kalvis (University of Latvia)

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics

Contribution ID: 5

Type: **Oral presentation**

# **APE-Shapes – Polyominoes, Polyiamonds and Polyhexes**

*Wednesday, 14 February 2024 14:35 (30 minutes)*

The talk will deal with the question of what values the number of edges can take for APE-polygons on square, triangular and hexagonal grids.

## **Keywords**

## **Acknowledgements**

**Primary author:** BULIŅA, Elīna

**Co-author:** CIBULIS, Andrejs

**Presenter:** BULIŅA, Elīna

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics

Contribution ID: 6

Type: **Oral presentation**

# Konveijera lenšu problēma

*Wednesday, 14 February 2024 16:05 (30 minutes)*

## Keywords

## Acknowledgements

**Primary author:** VALAINIS, Aigars (Latvijas Universitāte)

**Presenter:** VALAINIS, Aigars (Latvijas Universitāte)

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics

Contribution ID: 7

Type: **Oral presentation**

## Galīgi gredzeni un formālās pakāpju rindas

*Wednesday, 14 February 2024 16:35 (30 minutes)*

### **Keywords**

### **Acknowledgements**

**Primary author:** BULS, Jānis (Latvijas Universitāte)

**Presenter:** BULS, Jānis (Latvijas Universitāte)

**Session Classification:** Discrete Mathematics

**Track Classification:** Discrete Mathematics