Group 3 :

Some Results on linear codes

- Speaker : Boran Kim (AORC Group 3)
- Abstract : In this talk, we present various results on certain types of linear codes. Firstly, we construct minimal linear codes with few-weight from multi-variable functions. Secondly, we classify all the repeated-root cyclic self-dual codes over a certain finite chain ring. Using the classification, we give a mass formula for counting cyclic self-dual codes. Finally, we determine the minimum symbol-pair weight and RT weight of repeated-root cyclic codes over a certain ring. For this, we explicitly suggest the third torsional degree for all different types of cyclic codes.

AORC Monthly Seminar

Nov. 27 (Fri), 2020 @ AORC (Online)

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AORC 응용대수 및 최적화 연구센터
Applied Algebra & Optimization Research Center

AORC Monthly Seminar

- Object : Active collaboration within and between groups, fitting the aim of SRC
- Plan : Newly-joined researchers take pivotal roles.
- Operations Committee :
  - Nhan Phu Chung (Committee Chair, Principal professor)
  - Bumtle Kang (Group 1), Juyoung Jeong (Group 2), Boran Kim (Group 3)

Program

- 2:00 - 2:50 pm : Bryan Curtis (AORC Group 1) & discussion
- 3:00 - 3:50 pm : Juyoung Jeong (AORC Group 2) & discussion
- 4:00 - 4:50 pm : Boran Kim (AORC Group 3) & discussion

Abstracts

Group 1 :

Sign Patterns of Row Orthogonal Matrices

- Speaker : Bryan Curtis (AORC Group 1)
- Abstract : A sign pattern is a $(0, 1, -1)$-matrix whose entries represent the sign of a real matrix. A long standing open problem is to classify the sign patterns that allow orthogonality, i.e classify sign patterns that have an orthogonal realization. We investigate various necessary conditions for a sign pattern to allow orthogonality. We also utilize the theory of smooth manifolds to develop a technique for constructing sign patterns of orthogonal matrices.

Group 2 :

Commutation principles in Euclidean Jordan algebras

- Speaker : Juyoung Jeong (AORC Group 2)
- Abstract : The commutation principle of Ramirez, Seeger, and Sossa gives a necessary condition for an optimal solution to certain optimization problems in the setting of Euclidean Jordan algebras. This principle is later generalized/extended by Seeger, Gowda and Jeong, Niezgoda, and Gowda. In this talk, I will briefly explain some history, state a geometric commutation principle for weakly spectral sets, and mention some applications.
