Group 2 :

Stabilization of parabolic PDE systems with disturbances

- Speaker : Arumugam Parivallal (AORC)
- Abstract : In this talk, the stabilization problem for parabolic type partial differential equations (PDEs) will be discussed. The primary intention of this talk is to construct a suitable controller such that the designed parabolic PDEs will be stabilized in the presence of disturbances. By using the concept of Lyapunov stability theory, the stabilization conditions are derived in the form of linear matrix inequalities. Finally, the derived theoretical results will be verified by using a numerical example.

AORC Monthly Seminar

Jul. 29 (Fri), 2022 @ 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)
  - Bumtle Kang (Group 1), Juyoung Jeong (Group 2), Bomi Shin (Group 3)

Program

- 2:00 - 2:50 pm : Vasu Tewari (Group 1) & discussion
- 3:00 - 3:50 pm : Yunhee Euh (Group 3) & discussion
- 4:00 - 4:50 pm : Arumugam Parivallal (Group 2) & discussion

Abstracts

Group 1 :

An algebra of Guay-Paquet, and chromatic symmetric functions

- Speaker : Vasu Tewari (University of Hawaii)
- Abstract : Motivated by the modular law, Guay-Paquet (in unpublished work) introduced a noncommutative algebra on paths that models it. We give several results in the context of this algebra and discuss their relations to recent work in the context of the abelian case of chromatic symmetric functions by Abreu–Nigro, Colmenarejo–Morales–Panova, among others. Klyachko's work in the context of the permutahedral variety makes a surprise appearance. Joint work with Philippe Nadeau (CNRS and Univ. Lyon)

Group 3 :

Curvature identities and their applications

- Speaker : Yunhee Euh (AORC)
- Abstract : In this talk, I will explain the process of deducing curvature identity by using of the first variational method from Gauss-Bonnet Theorem on a closed surface and obtain curvature identities on higher dimensional Riemannian manifolds. Moreover we recall Patterson's curvature identity on Riemannian manifolds based on the skew-symmetric properties of the generalized Kronecker delta. We provide some explicit formulae of Patterson's curvature identity on 5-dimensional and 6-dimensional Einstein manifolds. We explain that the curvature identities on the Einstein manifold derived from the Chern-Gauss-Bonnet Theorem are the same as the curvature identities deduced from Patterson's result. We also provide their applications and examples that support the theorems.