Group 3 :

Minimal Decomposition of Dynamical Systems of p-adic Monomials for Small Primes p and 2-adic Fibonacci Polynomials

- Speaker : Myunghyun Jung (AORC Group 3)
- Abstract : The minimal decomposition of dynamical systems is to divide the space into three parts: the set of periodic points, the union of minimal sets, and the attracting basin. In this talk, we present the minimal decomposition of dynamical systems of the ring of p-adic integers for monomials x^m when p=2, 3, and 5, and of the ring of 2-adic integers for Fibonacci polynomials.

References

[1] Myunghyun Jung, Donggyun Kim, and Kyunghwan Song, "Dynamic Structures of 2-adic Fibonacci Polynomials", arXiv preprint arXiv:1903.05735 (2019).

[2] Myunghyun Jung and Donggyun Kim, "Dynamic structures of p-adic monomials for small primes p", *J. Number Theory* 211 (2020), pp. 155-183. ISSN: 0022-314X. DOI: 10.1016/j.jnt.2019.10.001.

Group 3 :

Recent Topics in Dynamical Systems from Measure Theoretical Viewpoint

- Speaker : Bomi Shin (AORC Group 3)
- Abstract : In this talk, we discuss some recent and ongoing works on the dynamics of flows or homeomorphisms with various expansive measures. In particular, we consider the Borel hierarchy of the set of expansive measures of a homeomorphism of a compact metric space in the space of Borel probability measures. And we prove a measurable version of the Smale's spectral decomposition theorem for flows. More precisely, we show that some necessary conditions of the set of all expansive measures of homeomorphism is dense in the set of Borel probability measures. Moreover, we prove that if a flow ϕ on a compact metric space X is invariantly measure rescaling expansive on its rescaled chain recurrent set $RCR(\phi)$ and has the rescaled shadowing property on $RCR(\phi)$ then ϕ has the spectral decomposition, i.e., the nonwandering set $\Omega(\phi)$ is decomposed by a disjoint union of invariant and closed subsets on which ϕ is topologically transitive.

AORC Monthly Seminar

Sep. 24 (Thu), 2020 @ AORC (Online)

SRC Funded by NRF of Korea

AORC Monthly Seminar

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

Program

- 2:00 - 2:50 pm : Byung-Hak Hwang (AORC Group 1) & discussion
- 2:50 - 3:40 pm : Soo Hyun Kim (AORC Group 2) & discussion
- 3:40 - 4:30 pm : Myunghyun Jung (AORC Group 3) & discussion
- 4:30 - 5:20 pm : Bomi Shin (AORC Group 3) & discussion
- 5:50 - 7:20 pm : Dinner (TBA)

Abstracts

Group 1 :

Positivity in symmetric functions

- Speaker : Byung-Hak Hwang (AORC Group 1)
- Abstract : One of the main subjects of algebraic combinatorics is to study algebraic structures using combinatorial methods. Especially, when a positivity phenomenon arises in an algebraic structure, combinatorics is very useful for studying such algebraic structure.
Meanwhile, symmetric functions are central objects in algebraic combinatorics, which have connections with representation theory, algebraic geometry, mathematical physics, and other various areas.
In this talk, I will give some introductory examples for positivity in algebraic combinatorics, especially in symmetric functions. I will also present some famous open problems in this field.

Group 2 :

Deformation of Pythagorean hodograph curves using rectifying control polygons

- Speaker : Soo Hyun Kim (AORC Group 2)
- Abstract : Pythagorean hodograph (PH) curves are a special type of polynomial curves that their speed functions are also polynomials. We introduce the concept of a rectifying control polygon for PH curves, which has (i) the end point interpolation property, (ii) the rectifying property, in the sense that the length of the polygon is the same as the arc length of the PH curve, and (iii) the same degree of freedom as the PH curve has. This is a joint work with Hwan Pyo Moon.