

The 80th KPPY Combinatorics Seminar

Organized by S.Bang, M.Hirasaka, T.Jensen, J.Koolen and M.Siggers,
the local organizer : Young-Soo Kwon

December 17, 2016

Date

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Place

Science Building No. 1, Room 319,
Department of Mathematics in Yeungnam University

Program

11:00–11:50, Shingo Saito (Kyushu University)
Bowman-Bradley type theorems for multiple zeta values and analogues

13:40–14:30, Min Jae Kwon (Kyungpook National University)
The Krull dimension of composite power series rings over valuation rings

14:40–15:30, Seog-Jin Kim (Konkuk University)
List 3-dynamic coloring of graphs with small maximum average degree

16:00–16:50, Kyoung-tark Kim (Sogang University)
Power series Ore's extension

17:00–17:50, O-joung Kwon (Technische Universitat Berlin)
Coloring graphs without fan vertex-minors

18:30–20:30, Banquet

Name: Shingo Saito (Kyushu University)

Title: Bowman-Bradley type theorems for multiple zeta values and analogues

Abstract: Multiple zeta values are a multivariate analogue of special values of the Riemann zeta function. After giving a brief introduction to the theory of multiple zeta values, I shall present results related to a formula established by Bowman and Bradley.

Name: Min Jae Kwon (Kyungpook National University)

Title: The Krull dimension of composite power series rings over valuation rings

Abstract : The problem of determining the Krull dimension of the polynomial ring $R[X]$ and the power series ring $R[[X]]$ is one of the problems in commutative rings. When $\dim(R)$ is finite, $\dim(R[X])$ was completely determined. In power series case, there are some difficulties. For example, $R[[X]]$ may have uncountable Krull dimension even if $\dim(R) = 1$. In traditional power series extension, many results were showed. But in composite power series extension, only some results were discovered. In this talk, I will introduce some tools to construct prime chains and classify the Krull dimension of composite power series rings over valuation rings.

Name: Seog-Jin Kim (Konkuk University)

Title: List 3-dynamic coloring of graphs with small maximum average degree

Abstract : An r -dynamic k -coloring of a graph G is a proper k -coloring ϕ such that for any vertex v , v has at least $\min\{r, \deg_G(v)\}$ distinct colors in $N_G(v)$. The r -dynamic chromatic number $\chi_r^d(G)$ of a graph G is the least k such that there exists an r -dynamic k -coloring of G . The list r -dynamic chromatic number of a graph G is denoted by $ch_r^d(G)$. Recently, Loeb, Mahoney, Reiniger, and Wise showed that the list 3-dynamic chromatic number of a planar graph is at most 10. And Cheng, Lai, Lorenzen, Luo, Thompson, and Zhang studied the maximum average degree condition to have $\chi_3^d(G) \leq 4, 5, \text{ or } 6$. In this paper, we study list 3-dynamic coloring in terms of maximum average degree. We show that $ch_3^d(G) \leq 6$ if $mad(G) < \frac{18}{7}$, and $ch_3^d(G) \leq 7$ if $mad(G) < \frac{14}{5}$, and both of the bounds are tight. This is joint work with Boram Park.

Name: Kyoung-tark Kim (Sogang University)

Title: Power series Ore's extension

Abstract: Recently, there was a chance to look at again the definitions of p-adic integers, p-adic numbers, and Witt vectors. I thought (conjecturally) that these constructions can be unified in terms of (a generalization of) Ore's extension. I will provide also some history of embedding problem of a domain into its quotient skew field: When is a ring without zero divisors embedded in a division ring? This subject is my current research in progress.

Name: O-joung Kwon (Technische Universitat Berlin)

Title: Coloring graphs without fan vertex-minors

Abstract: A graph class C is called chi-bounded if there is a function f such that for every graph G in C , the chromatic number of G is bounded by $f(w(G))$ where $w(G)$ is the size of a maximum clique in G . Geelen conjectured that for every graph H , the class of H vertex-minor free graphs is chi-bounded. We prove that this conjecture is true when H is a fan graph. This is joint work with Choi and Oum.