

The 30th PNU–PMI Algebraic Combinatorics Workshop

Organized by M.Hirasaka and J.Koolen

May 9, 2009

Date May 9, 2009

Place C32–211, Department of Mathematics in Pusan National University
Program

11:00–11:50, Sera Kim (PNU)

A Miyazawa type polynomial invariant of virtual links

13:30–14:20, Reza Sharafadini (PNU)

On a class of half–homogeneous schemes

14:40–15:30, Young–Soo Kwon (Yeungnam University)

About distinguishing number of merged Johnson graphs

15:50–16:40, Toshifumi Tanaka (POSTECH)

On combinatorial link Floer homology and its applications

17:00–17:50, Hee–Kap Ahn (POSTECH)

Aperture–Angle and Hausdor–Approximation of Convex Figures

19:00–21:00, Banquet (free of charge)

Available Devices for Presentation

We strongly encourage speakers to give a classical styled talk with chalk and blackboard. However, one beam projector is equipped at C32–211.

This meeting is supported by BK and PMI.

Speaker: Sera Kim (PNU)

Title: A Miyazawa type polynomial invariant of virtual links

Abstract: In this talk, we introduce a new polynomial invariant $f(t)$ of virtual links and the computation of $f(t)$ for virtual pretzel knots and links as applications. We also show the properties about $f(t)$ such as the Vassiliev invariant, the double flype move and the extension version of $f(t)$ for virtual magnetic graph diagrams.

Speaker: Reza Sharafadini (PNU)

Title: On a class of half-homogeneous schemes

Abstract: We aim to characterize a class of half homogeneous schemes, using character theory methods. The set of basis relations of a scheme has a unique partition. If cardinal of each part is 2, then the scheme has exactly 2 irreducible character. P. Cameron proved that such a scheme is equivalent to a linked projective design. Besides, D. G. Higman investigated the schemes whose cardinal of each part is 3 and proved that such a scheme has 3 irreducible characters and its homogeneous components are all symmetric. For an arbitrary natural element r , we intend to characterize schemes whose cardinal of each part of the partition of basis relations is r .

Speaker: Young-Soo Kwon (Yeungnam University)

Title: About distinguishing number of merged Johnson graphs

Abstract: The distinguishing number of a graph G is the minimum number of colors for which there exists an assignment of colors to the vertices of G such that the set of color-preserving automorphisms of G only consists of the identity. In this talk, we will consider the distinguishing number of the merged Johnson graph which is a generalization of both the Kneser graph and the Johnson graph.

Speaker: Toshifumi Tanaka (PMI)

Title: On combinatorial link Floer homology and its applications

Abstract: Link Floer homology is an invariant for links defined by Ozsvath and Szabo using a version of Lagrangian Floer homology. A combinatorial description to this invariant was given by Manolescu, Ozsvath, Szabo and Thurston. In this talk, we review their results and study how to compute it. We also consider some applications.

Speaker: Hee-Kap Ahn (POSTECH)

Title: Aperture-Angle and Hausdor-Approximation of Convex Figures

Abstract: The aperture angle $\alpha(Q; i)$ of angle α with the smallest cone with apex x that contains Q . The aperture angle approximation of a convex polygon Q .

$\alpha(Q; C)$ is the minimum aperture angle of any $x \in C \cap Q$ with respect to Q . There is an inscribed convex k -gon $Q' \subset Q$ with aperture $\alpha(Q; C)$.

We show that for any compact convex set Q in the plane and any approximation ϵ , Freutel from the early 1990s. The same proof technique can be used to prove a conjecture (the Brass k -gon problem) of Erdős and Rado.

Hausdor distance $d_H(P, Q)$, but all subpolygons of P (the convex hull of some vertices of P) admit such an approximating Q' of size $(k+1)$ -gon.

that. This follows from the result of Freutel. This Hausdor distance $d_H(P, Q)$ is at most $\frac{1}{k+1} \sin \frac{\pi}{k+1}$. For any convex polygon P of