The 19th East Asian Conference on Geometric Topology

February 19–22, 2024
RIMS, Kyoto University, Japan

https://www.kurims.kyoto-u.ac.jp/~eacgt/

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Welcome to

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Welcome to RIMS, Kyoto University, Japan. The purpose of the conference is to help promoting the academic exchange and the friendship among researchers of three East Asian countries in the area of geometric topology and encouraging graduate students of the three countries to study in this fascinating area of mathematics.

This conference is supported by the following:

Research Institute for Mathematical Sciences, Kyoto University
JSPS, Grant-in-Aid for Scientific Research (A): JP21H04428
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We hope you will enjoy the conference.

Tomotada Ohtsuki
Chair

Contents

1. Information

Lecture rooms:
The plenary talks are given at Room 420 on the 4th floor. Parallel sessions take place in 3 rooms: Room 420, Room 111 and Room 110 (both Rooms 111 and 110 are on the 1st floor).

Registration:
When you arrive at the conference, please input your information (name, affiliation and email address) at one of the terminals at the backside of Rooms 420, 111 and 110. Further, please take your name card and a copy of program and abstract at the entrance of Room 420 (in front of the room or in the room).

To participants from China and Korea: Please go to Room 103 on the 1st floor at 13:00–14:00 on February 19th (Monday) to make the procedure of your visit. If you can not visit there at that time, please go to Room 104 (International Research Support Office (RIMS secretary)) on the 1st floor when you arrive at the conference.

To participants who attend banquets and/or excursion: Please go to Room 103 on the 1st floor at 13:00–14:00 on February 19th (Monday) to confirm your attendance of banquets and/or excursion. If you can not visit there at that time, please contact a local organizer when you arrive at the conference.

Internet connection:
The eduroam wireless network is available on site. If you have some problems related to eduroam, please contact your home institution's technical support.

Banquets:
We have banquets in the cafe restaurant *Camphora* (in the campus of Kyoto University) at 18:00 on February 19th (Monday) and, in the restaurant *Monsieur ITOH* (near Kawaramachi-Sanjo crossing) at 19:00 on February 22th (Thursday). We ask the participants of the banquets to go there at that time. For the location of *Camphora* and *Monsieur ITOH*, please see the map of them distributed at the conference.

We ask the participants of the conference to arrange the other meals by yourself.

Excursion:
We have an excursion in the afternoon on February 22th (Thursday). We ask the participants of the excursion to go to the entrance of RIMS at 13:00 on February 22th (Thursday).

Notice for participants in the morning:
In plenary talks in the morning, Room 420 will be very crowded. In order to avoid high density of people in Room 420 (to prevent infection), we show live streamings of plenary talks at screens of Room 111 and Room 110. Please also use Room 111 and Room 110 to listen plenary talks to avoid high density of people in Room 420.

Notice for speakers:
Speakers are supposed to give their presentations at RIMS.
A speaker can give a talk by either of the following three method. We recommend a speaker to give a talk by the method (1).

(1) A speaker gives a talk by a slide of a pdf file. In this case, please copy the pdf file of your slide to the PC at the lecture room in advance (in the tea time before your block), and please give a talk by using this PC. (This PC is connected to the PC projector of the lecture room, and this PC is also connected to Zoom via RIMS wifi.)

(2) A speaker can give a talk by his/her own PC. (**We do not recommend this method.**) In this case, please connect your PC to the PC projector in advance, and please login Zoom via RIMS wifi in advance. In this case, you need eduroam or a computer account of RIMS to login Zoom in advance. **If you need a computer account of RIMS, please let the local organizer (eacgt2024@kurims.kyoto-u.ac.jp) know this in advance.**

(3) A speaker can give a talk by using blackboard at the lecture room. In this case, we distribute live streaming of the talk to online participants via Zoom.

Notice for online participants:
During a talk, please let your sound off (mute).
At the end of a talk, you can ask questions via Zoom, letting your sound on.
Please do not record the live streaming of a talk.

Notice for chairpersons:
Please ask the speakers of your block to copy the pdf files of the talks to the PC at the lecture room in advance (in the tea time before your block).

For further information, please see the conference web page:

`https://www.kurims.kyoto-u.ac.jp/~eacgt/`

2. **Talk Schedule**

February 19 (Monday)

	Room 420 (live streaming are available at Rooms 111 and 110)		
Chair	*Takahiro Kitayama*		
9:45–10:30	Thang T. Q. Le		
10:45–11:30	Honghao Gao		
11:30–13:00	Lunch		
	Room 103		
13:00–14:00	Registration		
	Room 420	Room 111	Room 110
Chair	*Yi Liu*	*Ruifeng Qiu*	*Tetsuya Ito*
14:00–14:20	Andrew Kricker	Toshio Saito	Jean-Baptiste Bellynck
14:25–14:45	Kouki Yamaguchi	Motoo Tange	Jiming Ma
14:50–15:10	Leo Yoshioka	Sungmo Kang	Junseok Kim
15:10–15:40	Tea Time		
Chair	*Thang T. Q. Le*	*Noboru Ito*	*Eiko Kin*
15:40–16:00	Fengling Li	Zhiyun Cheng	Carl-Fredrik Nyberg-Brodda
16:05–16:25	Kyungbae Park	Naoko Kamada	Dounnu Sasaki
16:35–16:55	Katsumi Ishikawa	Yanqing Zou	Ryoga Furutani
17:00–17:20	Stavros Garoufalidis	Youlin Li	(blanc)
18:00–20:00	Banquet		

February 20 (Tuesday)

	Room 420 (live streaming are available at Rooms 111 and 110)		
Chair	*Naoko Kamada*		
9:45–10:30	Inasa Nakamura		
10:45–11:30	Seungwon Kim		
11:30–13:00	Lunch		
	Room 420	Room 111	Room 110
Chair	*Kimihiko Motegi*	*Kazuhiro Ichihara*	*Ayumu Inoue*
13:00–13:20	Gyo Taek Jin	Bin Yu	Kokoro Tanaka
13:25–13:45	Hajime Kubota	Eiko Kin	Naoki Kimura
13:50–14:10	Seonmi Choi	Shunsuke Kano	Jin Kosaka
14:10–14:40	Tea Time		
Chair	*Takuya Sakasai*	*Motoo Tange*	*Makoto Ozawa*
14:40–15:00	Ying Zhang	Jung Hoon Lee	Junhua Wang
15:05–15:25	Yue Gao	Erika Kuno	Noboru Ito
15:30–15:50	Ryo Matsuda	Sangbum Cho	Kamolphat Intawong
15:50–16:20	Tea Time		
Chair	*Jiajun Wang*	*Sang-hyun Kim*	*Wataru Yuasa*
16:20–16:40	Xiliu Yang	Xiaobing Sheng	Jun Ueki
16:45–17:05	Zhechi Cheng	Akihiro Takano	Sohei Tateno
17:15–17:35	Tatsumasa Suzuki	Gye-Seon Lee	Jinho Jeoung
17:40–18:00	Langte Ma	Minkyu Kim	Andreani Petrou

February 21 (Wednesday)

	Room 420 (live streaming are available at Rooms 111 and 110)		
Chair	*Kouichi Yasui*		
9:45–10:30	Noriyuki Hamada		
10:45–11:30	Shicheng Wang		
11:30–13:00	Lunch		
	Room 420	Room 111	Room 110
Chair	*Noriyuki Hamada*	*Tetsuya Ito*	*Jun Murakami*
13:00–13:20	Min Hoon Kim	Xiaolei Wu	Fengchun Lei
13:25–13:45	Yohei Wakamaki	Wonjun Chang	Haimiao Chen
13:50–14:10	Natsuya Takahashi	Zhongzi Wang	Hiroaki Karuo
14:10–14:40	Tea Time		
Chair	*Ying Zhang*	*Kokoro Tanaka*	*Seiichi Kamada*
14:40–15:00	Wenyuan Yang	Yongju Bae	Byeorhi Kim
15:05–15:25	Kento Sakai	Ayumu Inoue	Zixi Wang
15:30–15:50	Wonyong Jang	Mai Sato	Jumpei Yasuda
15:50–16:20	Tea Time		
Chair	*Takahiro Kitayama*	*Jae Choon Cha*	*Yuya Koda*
16:20–16:40	Takuya Sakasai	Se-Goo Kim	Makoto Ozawa
16:45–17:05	Ingrid Irmer	Sungkyung Kang	Katsunori Arai
17:10–17:30	Hongtaek Jung	Jaewon Lee	Naoyuki Monden

February 22 (Thursday)

	Room 420 (live streaming are available at Rooms 111 and 110)
Chair	*Takuya Sakasai*
9:45–10:30	Kazuhiro Ichihara
10:45–11:30	Sang-hyun Kim
11:30–13:00	Lunch
13:00–19:00	Excursion
19:00–21:00	Banquet

3. Program

February 19 (Monday)

ROOM 420 (live streaming are available at Rooms 111 and 110)
Chair: Takahiro Kitayama
9:45–10:30 **Thang T. Q. Le** (Georgia Institute of Technology)
Quantum trace map for SL_n skein algebras of surfaces
10:45–11:30 **Honghao Gao** (Tsinghua University)
Legendrian knots and Lagrangian fillings

ROOM 103
13:00–14:00 **Registration**

ROOM 420
Chair: Yi Liu
14:00–14:20 **Andrew Kricker** (Nanyang Technological University)
Circle-valued angle structures on ideal triangulations and the meromorphic 3D index
14:25–14:45 **Kouki Yamaguchi** (Kyoto University)
On the 3-loop polynomial of genus 1 knots with trivial Alexander polynomial
14:50–15:10 **Leo Yoshioka** (The University of Tokyo)
Non-trivial cycles of the spaces of long embeddings detected by 2-loop graphs

Chair: Thang T. Q. Le
15:40–16:00 **Fengling Li** (Dalian University of Technology)
New polynomial invariants for knotoids
16:05–16:25 **Kyungbae Park** (Kangwon National University)
Alexander polynomial of twisted torus knots
16:35–16:55 **Katsumi Ishikawa** (Kyoto University)
The trapezoidal conjecture for links of braid index 3
17:00–17:20 **Stavros Garoufalidis** (Southern University of Science and Technology)
Multivariable knot polynomials from braided Hopf algebras with automorphisms

ROOM 111

Chair: Ruifeng Qiu

14:00–14:20 **Toshio Saito** (Joetsu University of Education)
Exceptional or half-integral chirally cosmetic surgeries

14:25–14:45 **Motoo Tange** (University of Tsukuba)
Lens space surgeries on homology spheres of $\lambda = -2, -3$

14:50–15:10 **Sungmo Kang** (Chonnam National University, Mathematics Education)
Hyperbolic tunnel-number-one knots with Seifert-fibered Dehn surgeries

Chair: Noboru Ito

15:40–16:00 **Zhiyun Cheng** (Beijing Normal University)
Intersection graph and writhe polynomial

16:05–16:25 **Naoko Kamada** (Nagoya City University)
An invariant of twisted knots

16:35–16:55 **Yanqing Zou** (Tongji University)
Some results of tunnel numbers of satellite knots

17:00–17:20 **Youlin Li** (Shanghai Jiao Tong University)
Strongly exceptional Legendrian connected sum of two Hopf links

ROOM 110

Chair: Tetsuya Ito

14:00–14:20 **Jean-Baptiste Bellynck** (Osaka University)
Visualizing Cayley graphs of finitely presented groups using force-directed graph algorithms

14:25–14:45 **Jiming Ma** (Fudan University)
Complex hyperbolic quadrangle groups

14:50–15:10 **Junseok Kim** (KAIST)
A subgroup of Out(RAAG) and its acylindrical hyperbolicity

Chair: Eiko Kin

15:40–16:00 **Carl-Fredrik Nyberg-Brodda** (KIAS)
On the freeness problem for parabolic subgroups of $\mathrm{SL}(2,\mathbb{C})$

16:05–16:25 **Dounnu Sasaki** (Gakushuin University)
Counting subgroups via Mirzakhani's curve counting

16:35–16:55 **Ryoga Furutani** (Hiroshima University)
Divides and hyperbolic volumes

17:00–17:20 (blanc)

18:00–20:00 **Banquet**

February 20 (Tuesday)

ROOM 420 (live streaming are available at Rooms 111 and 110)
Chair: Naoko Kamada

9:45–10:30 **Inasa Nakamura** (Saga University)
Knitted surfaces in the 4-ball and their graphical description

10:45–11:30 **Seungwon Kim** (Sungkyunkwan University)
Knotted handlebody links in the 4-sphere

ROOM 420
Chair: Kimihiko Motegi

13:00–13:20 **Gyo Taek Jin** (KAIST)
Minimal grid diagrams of prime knots with crossing number 14 and arc index 13

13:25–13:45 **Hajime Kubota** (Kyoto University)
Grid homology for spatial graphs and a Kunneth formula of connected sums

13:50–14:10 **Seonmi Choi** (Kyungpook National University)
Mosaics for immersed surface-links

Chair: Takuya Sakasai

14:40–15:00 **Ying Zhang** (Soochow University)
Length minima for an infinite family of filling closed curves on a one-holed torus

15:05–15:25 **Yue Gao** (Anhui Normal University)
An upperbound for the number of critical points of the systole function on the surface moduli space

15:30–15:50 **Ryo Matsuda** (Kyoto University)
Maximal cusps are not dense for the infinite-dimensional Teichmüller spaces

Chair: Jiajun Wang

16:20–16:40 **Xiliu Yang** (Peking University)
Knot Floer homology and the fundamental group of (1,1) knots

16:45–17:05 **Zhechi Cheng** (Wuhan University)
Combinatorial aspects of symplectic Khovanov homology

17:15–17:35 **Tatsumasa Suzuki** (Tokyo Institute of Technology)
The d-invariants of Brieskorn homology 3-spheres with almost simple linear graphs

17:40–18:00 **Langte Ma** (Shanghai Jiao Tong University)
Homology $S^1 \times S^3$ and TQFT

ROOM 111

Chair: Kazuhiro Ichihara

13:00–13:20 **Bin Yu** (Tongji University)
Self orbit equivalences on a class of Anosov flows

13:25–13:45 **Eiko Kin** (Osaka University)
Complete description of Agol cycles of pseudo-Anosov 3-braids

13:50–14:10 **Shunsuke Kano** (Tohoku University, MathCCS)
Train track combinatorics and cluster algebras

Chair: Motoo Tange

14:40–15:00 **Jung Hoon Lee** (Jeonbuk National University)
Primitive curve complex for a handlebody

15:05–15:25 **Erika Kuno** (Osaka University)
Automorphisms of fine curve graphs for nonorientale surfaces

15:30–15:50 **Sangbum Cho** (Hanyang University)
Homotopy primitive disk complexes

Chair: Sang-hyun Kim

16:20–16:40 **Xiaobing Sheng** (Okinawa Institute of Science and Technology)
Some experimental results of knots and links constructed from Thompson's group F a la Jones

16:45–17:05 **Akihiro Takano** (The University of Tokyo)
The p-colorable subgroup of Thompson's group F

17:15–17:35 **Gye-Seon Lee** (Seoul National University)
Convex cocompactness for Coxeter groups

17:40–18:00 **Minkyu Kim** (KIAS)
Analyticity and primitivity of exponential functors on free groups

ROOM 110

Chair: Ayumu Inoue

13:00–13:20 **Kokoro Tanaka** (Tokyo Gakugei University)
The second quandle homology group of the knot n-quandle

13:25–13:45 **Naoki Kimura** (Waseda University)
Invariants of Legendrian knots derived from generalizations of racks

13:50–14:10 **Jin Kosaka** (Osaka University)
On classification of finite generalized Alexander quandles

Chair: Makoto Ozawa

14:40–15:00 **Junhua Wang** (Jiangsu University of Technology)
Small difference between tunnel numbers of cable knots and their companions

15:05–15:25 **Noboru Ito** (National Institute of Technology, Ibaraki College)
Integrating curvature and quantized Arnold strangeness

15:30–15:50 **Kamolphat Intawong** (National Institute of Technology, Ibaraki College)
Knot theory and its application to authentication technology

Chair: Wataru Yuasa

16:20–16:40 **Jun Ueki** (Ochanomizu University)
Profinite rigidity of the multivariable Alexander polynomials of links

16:45–17:05 **Sohei Tateno** (Nagoya University)
On the Iwasawa-type formula for $\mathbb{Z}_p^d$-covers of links

17:15–17:35 **Jinho Jeoung** (Seoul National University)
$\mathrm{PGL}_2(\mathbb{Q}_p)$-orbit closures on a p-adic homogeneous space of infinite volume

17:40–18:00 **Andreani Petrou** (OIST)
Factorisation of the Harer-Zagier transform for HOMFLY-PT polynomials

February 21 (Wednesday)

ROOM 420 (live streaming are available at Rooms 111 and 110)
Chair: Kouichi Yasui
9:45–10:30 **Noriyuki Hamada** (Kyushu University)
Exotic 4-manifolds with signature zero
10:45–11:30 **Shicheng Wang** (Peking University)
Some connections between topology and number theory

ROOM 420
Chair: Noriyuki Hamada
13:00–13:20 **Min Hoon Kim** (Kyungpook National University)
Calegari homotopy 4-spheres are standard
13:25–13:45 **Yohei Wakamaki** (Osaka University)
Stabilizations of some small exotic rational surfaces
13:50–14:10 **Natsuya Takahashi** (Osaka University)
Exotic 4-manifolds with small trisection genus

Chair: Ying Zhang
14:40–15:00 **Wenyuan Yang** (Peking University)
Limit sets for branching random walks on relatively hyperbolic groups
15:05–15:25 **Kento Sakai** (Osaka University)
Degeneration of hyperbolic ideal polygons along harmonic map rays
15:30–15:50 **Wonyoung Jang** (KAIST)
On the kernel of group actions on asymptotic cones

Chair: Takahiro Kitayama
16:20–16:40 **Takuya Sakasai** (The University of Tokyo)
On groups of Kim-Manturov
16:45–17:05 **Ingrid Irmer** (Southern University of Science and Technology)
Schmutz-Thurston duality
17:10–17:30 **Hongtaek Jung** (Seoul National University)
Volumes of Hitchin-Riemann moduli spaces are infinite

ROOM 111

Chair: Tetsuya Ito

13:00–13:20 **Xiaolei Wu** (Fudan University)
Compactly-supported classes in the homology of big mapping class groups

13:25–13:45 **Wonjun Chang** (POSTECH)
The generalized Harer conjecture for the homology triviality

13:50–14:10 **Zhongzi Wang** (Peking University)
Extendability over the 4-sphere and invariant spin structures of surface automorphisms

Chair: Kokoro Tanaka

14:40–15:00 **Yongju Bae** (Kyungpook National University)
The chromatic index of links

15:05–15:25 **Ayumu Inoue** (Tsuda University)
A relationship between quandle homologies and relative group homologies, from the view point of Seifert (hyper) surfaces

15:30–15:50 **Mai Sato** (Tsuda University)
Equivalence classes of $\mathrm{Rot}\mathbb{E}^2$-colorings of a diagram of a torus knot

Chair: Jae Choon Cha

16:20–16:40 **Se-Goo Kim** (Kyung Hee University)
Double slice genera and rho-invariants of knots

16:45–17:05 **Sungkyung Kang** (University of Oxford)
Finding exotic disks via satellite operations

17:10–17:30 **Jaewon Lee** (KAIST)
Obstructing 2-torsion in the rational concordance group

ROOM 110

Chair: Jun Murakami

13:00–13:20 **Fengchun Lei** (Dalian University of Technology)
On H'-splittings of handlebodies

13:25–13:45 **Haimiao Chen** (Beijing Technology and Business University)
Torsion in Kauffman bracket skein module of a 4-strand Montesinos knot exterior

13:50–14:10 **Hiroaki Karuo** (Gakushuin University)
On positivity of Roger–Yang skein algebras

Chair: Seiichi Kamada

14:40–15:00 **Byeorhi Kim** (POSTECH)
On light bulb theorem for immersed surfaces

15:05–15:25 **Zixi Wang** (Zhejiang Normal University)
Profinite rigidity and flexibility of some branched twisted spin 2-knots

15:30–15:50 **Jumpei Yasuda** (Osaka University)
Alexander theorem on surfaces in the 4-ball using knitted surfaces

Chair: Yuya Koda

16:20–16:40 **Makoto Ozawa** (Komazawa University)
Critical complexes for the 3-sphere

16:45–17:05 **Katsunori Arai** (Osaka University)
Cohomology of groupoid racks for spatial surfaces

17:10–17:30 **Naoyuki Monden** (Okayama University)
Ruled surfaces and indecomposable Lefschetz fibrations

February 22 (Thursday)

ROOM 420 (live streaming are available at Rooms 111 and 110)
Chair: Takuya Sakasai

9:50–10:30 **Kazuhiro Ichihara** (Nihon University)
Boundary slopes (nearly) bound exceptional slopes

10:45–11:30 **Sang-hyun Kim** (KIAS)
The first order ridigity of manifold diffeomorphism groups

13:00–19:00 **Excursion**

19:00–21:00 **Banquet**

4. Abstracts

Plenary talks

Honghao Gao *Tsinghua University*
Title: Legendrian knots and Lagrangian fillings
Abstract: Legendrian knots and their exact Lagrangian fillings are central objects to study in low dimensional contact and symplectic topology. Therefore, it is an important question to classify exact Lagrangian fillings up to Hamiltonian isotopy. It is conjectured that this classification is controlled by a quiver and some derived algebraic structures. In this talk, I will review the historical developments, and explain the algebraic machinery to distinguish fillings. Then, I will discuss the ideas to obtain a subjectivity result, which involving new ideas such as understanding polygons on surfaces, quiver with potentials, etc. This is based on a joint work with Roger Casals.

Noriyuki Hamada *Kyushu University*
Title: Exotic 4-manifolds with signature zero
Abstract: We will talk about our recent construction of infinitely many simply-connected closed exotic symplectic 4-manifolds with signature zero, which are homeomorphic but not diffeomorphic to $\#_{2k+1}(S^2 \times S^2)$ and $\#_{2l+1}(\mathbb{CP}^2 \# \overline{\mathbb{CP}}^2)$ for each $k \geq 5$ and $l \geq 4$, respectively. Notably, they provide the smallest such exotic 4-manifolds known to date. Moreover, they populate some new lattices in symplectic geography of simply-connected minimal symplectic 4-manifolds of general type. We build our examples from scratch: first, construct fairly special small Lefschetz fibrations over tori with signature zero, take fiber sum with the trivial fibration over a torus, and then apply surgeries along Lagrangian tori to kill π_1. This is joint work with Inanc Baykur (University of Massachusetts Amherst).

Kazuhiro Ichihara *Nihon University*
Title: Boundary slopes (nearly) bound exceptional slopes
Abstract: For a hyperbolic knot in the 3-sphere, we say a non-meridional slope is exceptional if Dehn surgery on that slope results in a non-hyperbolic manifold. We provide evidence in support of two conjectures. The first (inspired by a question of Kimihiko Motegi) states that any exceptional surgery slope occurs in the interval bounded by the least and the greatest finite boundary slopes. Secondly, when there are exceptional surgeries, we conjecture there are (possibly equal) NIT (meaning that non-integral or toroidal) boundary slopes $b_1 \leq b_2$ so that the exceptional slopes lie

in $[\lfloor b_1 \rfloor, \lceil b_2 \rceil]$. Moreover, if $\lceil b_1 \rceil \leq \lfloor b_2 \rfloor$, the integers in the interval $[\lceil b_1 \rceil, \lfloor b_2 \rfloor]$ are all exceptional surgeries. This talk is based on a joint work with Thomas Mattman (California State University, Chico).

Sang-hyun Kim *KIAS*
Title: The first order ridigity of manifold diffeomorphism groups
Abstract: Two groups are elementarily equivalent if they have the same sets of true first order group theoretic sentences. We prove that if the homeomorphism groups of two compact connected manifolds are elementarily equivalent, then the manifolds are homeomorphic. This generalizes Whittaker's theorem on isomorphic homeomorphism groups (1963) without relying on it. Joint work with Thomas Koberda (UVa) and Javier de la Nuez-Gonzalez (KIAS).

Seungwon Kim *Sungkyunkwan University*
Title: Knotted handlebody links in the 4-sphere
Abstract: In dimension 3, the following two theorems are well known: first, any two Seifert surfaces bounded by the unknot are isotopic, and second, any two splitting spheres of the 2-component trivial link are isotopic.

Recently, Budney-Gabai found that the generalization of the first theorem to dimension 4 is false , i.e., there are infinitely many 3-balls bounded by the trivial 2-knot in the 4-sphere. In this talk, I will talk about the generalization of Budney-Gabai's theorem to higher genus surface links. First, I will show that there exists a pair of handlebodies of genus greater than equal to two, bounded by the trivial surface knot in the 4-sphere, which are not isotopic rel. boundary. I will also talk about the existence of 3-dimensional handlebody links in the 4-sphere that are not isotopic relative to the boundary by showing that there are non isotopic splitting spheres for trivial surface links. This talk is based on joint works with Mark Hughes and Maggie Miller.

Thang T. Q. Le *Georgia Institute of Technology*
Title: Quantum trace map for SL_n skein algebras of surfaces
Abstract: For a punctured surface there are two quantizations of the SL_n character variety. The first quantization is the SL_n skein algebra, and the second one is the Fock-Goncharov's quantization of the higher Teichmuller space. When $n = 2$ Bonahon and Wong showed that there is an algebra homomorphism, called the quantum trace, from the first quantized algebra to the second one. On the classical level the map expresses the trace of a curve in terms of Thurston's shear coordinates of the Teichmuller space.

We show a similar quantum trace map exists for SL_n. This is a joint work with T. Yu.

Inasa Nakamura *Saga University*
Title: Knitted surfaces in the 4-ball and their graphical description
Abstract: Knits (or BMW tangles) are tangles in a cylinder generated by generators of the BMW (Birman-Murakami-Wenzl) algebras, consisting of standard generators of the braid group and their inverses, and splices of crossings called pairs of hooks. We give a new construction of surfaces in $D^2 \times B^2$, called knitted surfaces (or BMW surfaces), that are described as the trace of deformations of knits, and we give the notion of charts for knitted surfaces, that are graphs in B^2. We show that a knitted surface has a chart description. Knitted surfaces and their chart description include 2-dimensional braids and their chart description. This is joint work with Jumpei Yasuda (Osaka University).

Shicheng Wang *Peking University*
Title: Some connections between topology and number theory
Abstract: We will discuss some connections between topology and number theory inspired by the studies of mapping degrees and achirality of manifolds.

Parallel Session

Katsunori Arai *Osaka University*
Title: Cohomology of groupoid racks for spatial surfaces
Abstract: A spatial surface is a compact surface embedded in the 3-sphere. We assume that each connected component has non-empty boundary. Oriented spatial surfaces are represented by using trivalent spines and their diagrams. In this talk, we introduce the cohomology theory for groupoid racks and define cocycle invariants of oriented spatial surfaces, where a groupoid rack is an algebraic structure that can be used for colorings of diagrams of oriented spatial surfaces.

Yongju Bae *Kyungpook National University*
Title: The chromatic index of links
Abstract: Knots and links can be classified by the quandle colorability. For the colorable knots or links, there are various quandle invariants for finer classification e.g. the number of colorings, quandle cocycle invariants, etc. Unfortunately, there are no particular method to study the non-colorable knots at the moment. In this talk, we are going to introduce a new invariant, called the *chromatic index* of links, which is designed for studying non-colorable knots. We will try to show relationship between the chromatic index and the other known knot invariants; crossing number, braid index and bridge number, etc.

Jean-Baptiste Bellynck *Osaka University*
Title: Visualizing Cayley graphs of finitely presented groups using force-directed graph algorithms
Abstract: In this presentation, I will discuss an implementation of a program visualizing group presentations as Cayley graphs. I will explore different approaches, drawing comparisons with similar projects in the field. I will delve into one specific approach that utilizes a force-directed graph drawing algorithm specifically refitted for groups.
I will explain how the application might be used in university-level teaching to approach group theory from the perspective of symmetry operations on geometric objects as done in Carter's work. [Carter, 2009]. The drawn Cayley graphs make it possible to build up a graph theoretic intuition of various concepts like subgroups, quotient groups, growth of groups or word problem for groups.

Finally, since every finitely presented group can be generated in this manner, I will touch on how the software might be useful in experimental research of finitely presented groups.

Wonjun Chang *POSTECH*
Title: The generalized Harer conjecture for the homology triviality
Abstract: The classical Harer conjecture concerns the stable homology triviality of the evident embedding from braid groups to mapping class groups, a result established by Song and Tillmann. The main part of the proof is to show that the map induced on the plus construction of its classifying spaces (of their direct limits) is a double loop space map. In this talk, we present a proof of the generalized Harer conjecture, which extends the homology triviality to every (regular) embedding from braid groups to mapping class groups. The main strategy employed in the proof is to remove all the interchangeable subsurfaces and collapse the new boundary components. Then we get a covering space over a disk with marked points, which we know how to handle. The final goal is to show that the map induced on their classifying spaces preserves the actions of the framed little 2-disks operad.

Haimiao Chen *Beijing Technology and Business University*
Title: Torsion in Kauffman bracket skein module of a 4-strand Montesinos knot exterior
Abstract: For a 3-manifold M, let $S(M)$ denote its Kauffman bracket skein module. Problem 1.92 (G) (i) in the Kirby's list asks whether $S(M)$ is free when M is irreducible and has no incompressible non-parallel to the boundary torus. We answer this negatively by showing that $S(M)$ contains torsion when M is the complement of a 4-strand Montesinos knot in the 3-sphere.

Zhechi Cheng *Wuhan University*
Title: Combinatorial aspects of symplectic Khovanov homology
Abstract: Symplectic Khovanov homology is a link invariant defined with symplectic geometry. It behaves similarly to Khovanov homology, so Its comparison with the Khovanov homology remains an interesting question. In 2020, Abouzaid and Smith proved that symplectic Khovanov homology is isomorphic to Khovanov homology over characteristic-zero fields, while the more general cases remain open. In this talk, I will discuss sone recent progress on the topic in non characteristic-zero fields.

Zhiyun Cheng *Beijing Normal University*
Title: Intersection graph and writhe polynomial
Abstract: In this talk, I will explain the relation between the intersection graph of a chord diagram and the writhe polynomial of the corresponding virtual knot.

Sangbum Cho *Hanyang University*
Title: Homotopy primitive disk complexes
Abstract: Given a Heegaard splitting of the 3-sphere, the primitive disk complex is defined to be the full subcomplex of the disk complex for one of the handlebodies of the splitting, spanned by the vertices of primitive disks. It is an open question whether the primitive disk complex is connected or not when the genus of the splitting is greater than three. In this talk, we prove that a quotient of the primitive disk complex, called the homotopy primitive disk complex, is connected.

Seonmi Choi *Kyungpook National University*
Title: Mosaics for immersed surface-links
Abstract: The concept of a knot mosaic was introduced by Lomonaco and Kauffman as a means to construct a quantum knot system. The mosaic number of a given knot K is defined as the minimum integer n that allows the representation of K on an $n \times n$ mosaic board. Building upon this, Nelson and I generalized the knot mosaic system for surface-links using marked graph diagrams and gave the lower and upper bounds of the mosaic number of the surface-links in Yoshikawa's table. In this talk, we define a mosaic system for immersed surface-links using singular marked graph diagrams and discuss the mosaic number of immersed surface-links. This is joint work with Jieon Kim.

Ryoga Furutani *Hiroshima University*
Title: Divides and hyperbolic volumes
Abstract: A divide is a concept introduced by A'Campo as part of his study on complex plane curve singularities. Each divide defines a link in the 3-sphere called the link of the divide. In this talk, we reconstruct the complement of the link of a divide according to the combinatorial structure of the divide. As a consequence, we show that the complement of the link of a prime divide can be obtained by Dehn filling a hyperbolic 3-manifold that admits a decomposition into several ideal regular tetrahedra, octahedra and cuboctahedra. This immediately gives an upper bound of

the hyperbolic volume of the link of a divide. In addition, we show that the upper bound given here is asymptotically sharp. This is joint work with Y.Koda.

Yue Gao *Anhui Normal University*
Title: An upperbound for the number of critical points of the systole function on the surface moduli space
Abstract: We obtain an upper bound for the number of non-isometric critical points of the systole function on $\mathcal{T}_g$. Besides, we obtain an upper bound for the number of those critical points whose systole is smaller than a constant.

Stavros Garoufalidis *Southern University of Science and Technology*
Title: Multivariable knot polynomials from braided Hopf algebras with automorphisms
Abstract: We will discuss a unified approach to define multivariable polynomial invariants of knots that include the colored Jones polynomials, the ADO polynomials and the invariants defined using the theory of quantum groups. Our construction uses braided Hopf algebras with automorphisms. We will give examples of 2-variable invariants, and discuss their structural properties. Joint work with Rinat Kashaev.

Ayumu Inoue *Tsuda University*
Title: A relationship between quandle homologies and relative group homologies, from the view point of Seifert (hyper) surfaces
Abstract: Associated with a triple of a group G, its automorphism φ, and its subgroup H satisfying a certain condition, we have a quandle $X = (G, H, \varphi)$. In this talk, we see that we have a chain map from the (twisted) quandle chain complex $C_n^Q(X)_{\mathbb{Z}}$ to the (Adamson/Hochschild) relative group chain complex $C_n([G : H])$. Utilizing this chain map, we have a 2-cocycle of the knot quandle of a fibered knot which maps the fundamental class to the area of the fiber. We further see that each connected sum of the m-twist-spun trefoil and a surface knot, whose triple point number is zero, is not reversible and not negative amphicheiral if $2 \leq m \leq 5$.

Kamolphat Intawong *National Institute of Technology, Ibaraki College*
Title: Knot theory and its application to authentication technology
Abstract: In the information society, it is essential to continue developing information security technology. Recently, various approaches, such as quizzes, have been

taken. In the past years, we have been studying knot theory and introducing new functions implying invariants to distinguish some knots and links. One of the functions we introduced has a specific characteristic that enables it to accomplish the purpose with surprisingly less calculation time. In this study we apply this function: the multiple linking number T to create quizzes for authentication.

Ingrid Irmer *Southern University of Science and Technology*
Title: Schmutz-Thurston duality
Abstract: When constructing mapping class group-equivariant cell decompositions of Teichmueller space, the theory is greatly simplified by the existence of punctures or at least marked points, relative to which it is possible to construct cell decompositions. Two people who have independently pioneered the study of mapping class group-equivariant cell decompositions of Teichmueller space of closed compact surfaces without marked points are Schmutz and Thurston. In this talk it will be explained that there is a sense in which the two approaches are dual.

Katsumi Ishikawa *Kyoto University*
Title: The trapezoidal conjecture for links of braid index 3
Abstract: The trapezoidal conjecture is a classical famous conjecture posed by Fox, which states that the coefficient sequence of the Alexander polynomial of any alternating knot is trapezoidal. In this talk, we show this conjecture for knots and links of braid index 3.

Noboru Ito *National Institute of Technology, Ibaraki College*
Title: Integrating curvature and quantized Arnold strangeness
Abstract: Arnold invariants, J^-, J^+ and St, of plane curves are classical and well-known. Two invariants J^- and J^+ have been successfully quantized. The former was quantized by Viro and the latter by Lanzat-Polyak. However, the Arnold invariant St (Arnold strangeness) quantization remained unrealized. In this talk, we express a quantization of St (Arnold strangeness) by integrating curvatures multiplied by densities.

Wonyoung Jang *KAIST*
Title: On the kernel of group actions on asymptotic cones
Abstract: The concept of an asymptotic cone was first suggested by Gromov and he

used it to establish Gromov's polynomial growth theorem. An asymptotic cone of a group reflects many properties of the group. For example, a group is virtually nilpotent if and only if all of its asymptotic cones are locally compact (equivalently, proper). Also, a finitely generated group is hyperbolic if and only if all of its asymptotic cones are real trees. In this talk, we characterize the natural kernel of the action of a group G on its asymptotic cone. Our main theorem states that if G is acylindrically hyperbolic, then the kernel of G-action on an asymptotic cone of G is the same as many algebraically defined subgroups. Moreover, this result does not depend on the choice of ultrafilter and sequence that we need to define asymptotic cones so it implies that the kernel is invariant under the choice of these. It is known that a group may have distinct (actually, non-homeomorphic) asymptotic cones, and indeed some acylindrically hyperbolic groups also have various asymptotic cones. We also extend this result by other spaces at "infinity", for instance, the limit set of convergence group action, Floyd boundary, and many boundaries of CAT(0) spaces with some conditions. If time permits, we will introduce another action of G on an asymptotic cone, called Paulin's construction, and describe the kernel of Paulin's construction. This work is joint with my advisor, Hyungryul Baik.

Jinho Jeoung *Seoul National University*
Title: $\mathrm{PGL}_2(\mathbb{Q}_p)$-orbit closures on a p-adic homogeneous space of infinite volume
Abstract: Let $\mathbb{K}$ be an unramified quadratic extension of $\mathbb{Q}_p$ for a fixed $p > 2$. Projective general linear groups $G = \mathrm{PGL}_2(\mathbb{K})$ and $H = \mathrm{PGL}_2(\mathbb{Q}_p)$ act transitively on Bruhat-Tits trees T_G and T_H, respectively. We identify G/H with the set of H-subtrees $G.T_H$. Let Γ be a Schottky subgroup such that $\Gamma\backslash T_G$ is infinite volume and has an additional condition named high-branchedness, and let Λ be its limit set.

We classify Γ-orbits in G/H. Let $C = g_C H \in G/H$. As a generalization of Ratner's theorem, if $\Gamma\backslash g_C.T_H$ meets the convex core of $\Gamma\backslash T_G$, then the Γ-orbit of C is either dense or closed in $\mathcal{C}_\Lambda = \{gH : \partial(g.T_H) \cap \Lambda \neq \varnothing\}$.

Gyo Taek Jin *KAIST*
Title: Minimal grid diagrams of prime knots with crossing number 14 and arc index 13
Abstract: There are 46,972 prime knots with crossing number 14. Among them 19,536 are alternating and have arc index 16. Among the non-alternating knots, 17,477, and 3,180 have arc index 10, 11, and 12, respectively. The remaining 23,762 have arc index 13 or 14. There are none with arc index 15 or larger. We used the

Dowker-Thistlethwaite code of the 23,762 knots provided by the program Knotscape to locate non-alternating edges in their diagrams. Our method requires at least six non-alternating edges to find arc presentations with 13 arcs. We obtained 7,504 knots having arc index 13. We show them by their minimal grid diagrams. It is a joint work with Hwa Jeong Lee, Alexander Stoimenow, Minchae Kim, Songwon Ryu, Dongju Shin, and Hun Kim.

Hongtaek Jung *Seoul National University*
Title: Volumes of Hitchin-Riemann moduli spaces are infinite
Abstract: Let $Hit_n(S)$ be the PSL(n, R)-Hitchin component of a compact surface S with negative Euler characteristic and let $Mod(S)$ be the mapping class group. We discuss the Atiyah-Bott-Goldman volumes of the Hitchin-Riemann moduli spaces $Hit_n(S)/Mod(S)$. When $n = 2$, M. Mirzakhani proved that the Atiyah-Bott-Goldman volume, or equivalently the Weil-Petersson volume, of $Hit_2(S)/Mod(S)$ is finite. On the contrary, we show that the volumes of $Hit_n(S)/Mod(S)$ are infinite provided $n > 2$. This is joint work with Suhyoung Choi.

Naoko Kamada *Nagoya City University*
Title: An invariant of twisted knots
Abstract: Twisted knots correspond to stable equivalence classes of thickened (possibly, non-orientable) surfaces. They are a generalization of virtual knots. The odd writhe is an invariant of virtual knots defined by Kauffman. The n writhe and index polynomials are extensions of the odd writhe. In this talk, we discuss an invariant of twisted knots, which is related to the n writhe and index polynomials.

Sungkyung Kang *University of Oxford*
Title: Finding exotic disks via satellite operations
Abstract: Given a pair of slice disks which might not even be topologically isotopic, their (generalized) doubles are always topologically isotopic but potentially not smoothly isotopic. We prove that if we started with a pair of disks which are distinguished by cobordism maps in hat-flavored knot Floer homology, then the doubled disks are also distinguished in the same way. This gives the first general and flexible method of constructing exotic disks from any nontrivial knot. We also show that the same argument is in some cases possible also with Khovanov homology. This is a joint work with Gary Guth, Kyle Hayden, and JungHwan Park.

Sungmo Kang *Chonnam National University, Mathematics Education*
Title: Hyperbolic tunnel-number-one knots with Seifert-fibered Dehn surgeries
Abstract: In this talk, I will present Seifert-fibered surgeries under some circumstances on hyperbolic tunnel-number-one knots are integral and are realized by primitive/Seifert positions. This result supports partially the two conjectures related to Seifert-fibered surgeries on hyperbolic knots: (1) Any Seifert-fibered surgeries on hyperbolic knots in the 3-sphere are integral, and (2) any Seifert-fibered surgeries on hyperbolic tunnel-number-one knots can be realized by a primitive/Seifert position whose surface slope corresponds to the surgery slope.

Shunsuke Kano *Tohoku University, MathCCS*
Title: Train track combinatorics and cluster algebras
Abstract: The concepts of train track was introduced by W. P. Thurston to study the measured foliations/laminations and the pseudo-Anosov mapping classes on a surface. In this talk, we translate some concepts of train tracks into the language of cluster algebras using the tropicalization of Goncharov–Shen's potential function. Using this, we translate a combinatorial property of a train track associated with a pseudo-Anosov mapping class into the combinatorial property in cluster algebras, called the sign stability which was introduced by Tsukasa Ishibashi and the speaker.

Hiroaki Karuo *Gakushuin University*
Title: On positivity of Roger–Yang skein algebras
Abstract: The positivity conjecture of skein algebras is an intriguing topic inspired by (quantum) cluster algebras. The conjecture asserts that the "bracelets basis" over the Laurent polynomial ring $\mathbb{Z}[q^{\pm 1}]$ is a positive basis i.e. has structure constants in $\mathbb{Z}_{\geq 0}[q^{\pm 1}]$. It is known the bracelets basis forms a "lower bound" among the positive bases of the skein algebra. In this talk, we show similar results for Roger–Yang skein algebras, which are related to decorated Teichmüller spaces and cluster algebras of punctured surfaces.

Byeorhi Kim *POSTECH*
Title: On light bulb theorem for immersed surfaces
Abstract: The classical light bulb trick states that a knot smoothly embedded in $S^2 \times S^1$ that intersects a $S^2 \times \{y\}$ transversally exactly one point is isotopic to the standard vertical curve. In 2020, David Gabai generalized the classical light bulb trick to embedded surfaces in 4-manifolds. In this talk, we will give an overview of

Gabai's 4-dimensional light bulb theorem and generalize it to immersed surfaces in 4-manifolds.

Junseok Kim *KAIST*
Title: A subgroup of Out(RAAG) and its acylindrical hyperbolicity
Abstract: In this talk, I will introduce a finite index normal subgroup of the outer automorphism group of right-angled Artin group generated by transvections and partial conjugations. In order to check whether this group is acylindrically hyperbolic or not, we will discuss some interesting algebraic structure of it when the defining graph of right-angled Artin group is connected.

Min Hoon Kim *Kyungpook National University*
Title: Calegari homotopy 4-spheres are standard
Abstract: In 2009, D. Calegari constructed smooth homotopy 4-spheres for each fibered knot in the 3-sphere. In this talk, we show that all of them are diffeomorphic to the 4-sphere.

Minkyu Kim *KIAS*
Title: Analyticity and primitivity of exponential functors on free groups
Abstract: Functors on the category gr of finitely generated free groups and group homomorphisms appear naturally in different contexts of topology. There are examples given by Hochschild-Pirashvili homology for wedge of circles, or functors on the Habiro-Massuyeau category of Jacobi diagrams in handlebodies; as another example, bivariant functors on gr provide natural coefficients for the stable cohomology of automorphism groups of free groups. Some of these natural examples satisfy further properties: they are analytic and/or exponential.

Pirashvili proves that the category of exponential contravariant functors from gr to the category k-Mod of k-modules is equivalent to the category of cocommutative Hopf algebras over k. Powell proves an equivalence between the category of analytic contravariant functors from gr to k-Mod, and the category of linear functors on the linear PROP associated to the Lie operad when k is a field of characteristic 0. In this talk, after explaining these two equivalences of categories, I will explain how they interact with each other. We also go further by introducing primitive contravariant functors on gr to extend the results to positive characteristic. This is a joint work with Christine Vespa.

Se-Goo Kim *Kyung Hee University*
Title: Double slice genera and rho-invariants of knots
Abstract: We give a lower bound on the double slice genus of a knot using Cheeger-Gromov-von Neumann rho-invariants. We obtain the lower bound from a new obstruction to embedding a closed 3-manifold with infinite cyclic first homology in a closed 4-manifold with infinite cyclic fundamental group, preserving the first homology. As an application, we give knots with vanishing Casson-Gordon invariants whose double slice genera are arbitrarily large. This is a joint work with Taehee Kim.

Naoki Kimura *Waseda University*
Title: Invariants of Legendrian knots derived from generalizations of racks
Abstract: Racks and quandles are algebraic systems which bring knot invariants. In this talk, we introduce algebraic systems called a bi-Legendrian rack and a 4-Legendrian rack, both of which are racks equipped with additional structures. We explain these algebraic systems provide invariants of Legendrian knots.

Eiko Kin *Osaka University*
Title: Complete description of Agol cycles of pseudo-Anosov 3-braids
Abstract: The combinatorial isomorphism class of a periodic splitting sequence is a complete conjugacy invariant of a pseudo-Anosov map associated to the stable measured lamination. An Agol cycle of a pseudo-Anosov map is a periodic part of a periodic splitting sequence. Mosher defined a train track in a torus associated to a Farey interval and investigated its properties including an intriguing relation between the train track and the continued fraction expansion of a quadratic irrational number. In this talk we study Mosher's train track and give a complete description of the Agol cycles of pseudo-Anosov 3-braids. This is joint work with Keiko Kawamuro.

Jin Kosaka *Osaka University*
Title: On classification of finite generalized Alexander quandles
Abstract: Due to D. Joyce, for a given group and an automorphism of it, a quandle is constructed, which we call a generalized Alexander quandle. Recently, A. Higashitani and H. Kurihara has studied generalized Alexander quandles of finite groups. Although many generalized Alexander quandles can be classified using their theorem, there exist quandles derived from groups of order more than 16 that do not satisfy the assumptions of their theorem and cannot be classified. In this talk, I will present the results of isomorphisms of these exceptional quandles.

Andrew Kricker *Nanyang Technological University*
Title: Circle-valued angle structures on ideal triangulations and the meromorphic 3D index
Abstract: This talk will present some results concerning the space of S^1-valued angle structures on an ideal triangulation of a cusped 3-manifold. These structures were introduced by Feng Luo. The main theorem is that the connected components of this space are in a natural bijection with the elements of certain homology groups associated to the manifold. The correspondence will be constructed geometrically by considering the obstruction theory problem of lifting boundary-parabolic representations of the fundamental group of the manifold to $PSL(2,\mathbb{C})$ to boundary-unipotent representations to $SL(2,\mathbb{C})$. We will explain an application of these results to the study of the meromorphic 3D index of Garoufalidis and Kashaev. This is joint work with Craig Hodgson and Rafael Siejakowski.

Hajime Kubota *Kyoto University*
Title: Grid homology for spatial graphs and a Kunneth formula of connected sums
Abstract: Grid homology is a combinatorial reconstruction of the knot Floer homology. There is an extension of grid homology for transverse spatial graphs, which is known to be related to sutured Floer homology. In this talk, I will show that if a spatial graph has a sink, source, or cut edge, then its grid homology is trivial.As an application, I will give a purely combinatorial proof of a Künneth formula for the knot Floer homology of connected sums in the framework of the grid homology.

Erika Kuno *Osaka University*
Title: Automorphisms of fine curve graphs for nonorientale surfaces
Abstract: The fine curve graph of a surface was introduced by Bowden, Hensel, and Webb as a graph consisting of the actual essential simple closed curves on the surface. Long, Margalit, Pham, Verberne, and Yao proved that the automorphism group of the fine curve graph of a closed orientable surface is isomorphic to the homeomorphism group of the surface. We generalized their result to closed nonorientable surfaces N_g of genus $g \geq 4$. This is a joint work with Mitsuaki Kimura.

Gye-Seon Lee *Seoul National University*
Title: Convex cocompactness for Coxeter groups
Abstract: There are several notions of convex cocompactness for discrete subgroups of $\mathrm{PGL}(V)$ acting on the projective space $P(V)$, where V is a finite-dimensional real

vector space. This generalizes both the classical theory of convex cocompactness in real hyperbolic geometry, and the theory of divisible convex sets. In this talk, I will explain these notions in the context of Vinberg's theory of discrete reflection groups.

Joint work with Jeffrey Danciger, François Guéritaud, Fanny Kassel and Ludovic Marquis.

Jaewon Lee *KAIST*

Title: Obstructing 2-torsion in the rational concordance group

Abstract: It is well known that there are many 2-torsion elements in the concordance group. On the other hand, it is not known if there is any torsion element in the rational concordance group $\mathcal{C}_{\mathbb{Q}}$. Cha defined the algebraic rational concordance group $\mathcal{AC}_{\mathbb{Q}}$, an analogue of the classical algebraic concordance group, and showed that $\mathcal{AC}_{\mathbb{Q}} = \mathbb{Z}^{\infty} \oplus \mathbb{Z}_2^{\infty} \oplus \mathbb{Z}_4^{\infty}$. The knots that represent 2-torsion in $\mathcal{AC}_{\mathbb{Q}}$ potentially have order two in $\mathcal{C}_{\mathbb{Q}}$. In this talk, we provide an obstruction for algebraically rationally 2-torsion knots from being of finite order in $\mathcal{C}_{\mathbb{Q}}$. Moreover, we give a family consisting of such knots that generates an infinite rank subgroup of $\mathcal{C}_{\mathbb{Q}}$. We also remark that Cha proved that, in higher dimensions, the algebraic rational concordance order is the same as the rational concordance order. Our obstruction is based on the localized von Neumann ρ-invariant.

Jung Hoon Lee *Jeonbuk National University*

Title: Primitive curve complex for a handlebody

Abstract: A simple closed curve C in the boundary Σ of a handlebody V is a *primitive curve* if there exists a disk D in V such that C intersects ∂D transversely in a single point. Such a disk D is called a *dual disk* of C, and (C, D) is called a *dual pair*. Two primitive curves C and C' in Σ are said to be *separated* if there exist dual disks D and D' of C and C' respectively such that $C \cup D$ and $C' \cup D'$ are disjoint. We show that for any primitive curves C and C' in the boundary of a genus-g (≥ 2) handlebody, there exists a sequence $C = C_1, C_2, \ldots, C_n = C'$ of primitive curves such that C_i and C_{i+1} are separated for each $i \in \{1, 2, \ldots, n-1\}$. As a consequence, the primitive curve complex and the separating disk complex of a genus-g handlebody are connected for every $g \geq 2$.

Fengchun Lei *Dalian University of Technology*

Title: On H'-splittings of handlebodies

Abstract: Let F be a compact connected orientable surface properly embedded

in a compact connected orientable 3-manifold M. If F is separating M into two handlebodies H_1 and H_2, we say that $H_1 \cup_F H_2$ is an H'-splitting of M. In the talk, we will describe a characteristic of an H'-splitting for a handlebody.

Fengling Li *Dalian University of Technology*
Title: New polynomial invariants for knotoids
Abstract: As a generalization of the classical knots, knotoids deal with the open ended knot diagram in a surface. In recent years, many polynomial invariants for knotoids appeared, such as the bracket polynomial, the index polynomial and the nth polynomial, etc. In this talk, we will introduce a family of new polynomial invariants for knotoids and discuss some properties of them. This is joint work with Yi Feng.

Youlin Li *Shanghai Jiao Tong University*
Title: Strongly exceptional Legendrian connected sum of two Hopf links
Abstract: A Legendrian link in a contact 3-manifold is a smooth link that is tangent to the contact structure at every point. In an overtwisted contact 3-manifold, a Legendrian link is called "exceptional" if its complement is tight. It is considered "strongly exceptional" if its complement is tight and does not have Giroux torsion. In this talk, the strongly exceptional Legendrian representatives of connected sum of two Hopf links in contact 3-spheres are completely classified. This is joint work with Sinem Onaran.

Jiming Ma *Fudan University*
Title: Complex hyperbolic quadrangle groups
Abstract: We study representations of hyperbolic quadrangle groups into the isometric group of the complex hyperbolic plane. We show the discreteness and faithfulness of a representation with double accidental parabolicities. In particular, the 4-cusped hyperbolic 3-manifold $\mathbb{S}^3 - L12n2205$ admits a spherical CR uniformization, where $L12n2205$ is the link in Hoste-Thistlethwaite's table.

Langte Ma *Shanghai Jiao Tong University*
Title: Homology $S^1 \times S^3$ and TQFT
Abstract: In this talk, I will survey recent developments on the study of gauge theoretical invariants defined over closed smooth four manifolds whose integral homology is the same as that of $S^1 \times S^3$. The Seiberg–Witten type invariant defined by

Mrowka–Ruberman–Salieve is proved to satisfy TQFT properties. Conjecturally, it is equivalent to the Yang–Mills type invariant introduced by Furuta–Ohta. The equivalence between these two invariants will lead to interesting consequences, including a conjecture of Akbulut.

Ryo Matsuda *Kyoto University*
Title: Maximal cusps are not dense for the infinite-dimensional Teichmüller spaces
Abstract: It is known that the Bers boundary of a finite dimensional Teichmüller space has only a cusp and totally degenerate. McMullen has also shown that the set of all maximal cusps is dense in the Bers boundary. In this talk, we first show that a new type of degenerate called the David-Fuchsian b group, exists when Riemann surfaces satisfy the lower condition. The Riemann surface corresponding to this group is homeomorphic to the base point of Teichmüller space. Using this result, I will prove that the maximal cusps are not dense if the Riemann surface has at least two non-planar ends and satisfies the Shiga condition.

Naoyuki Monden *Okayama University*
Title: Ruled surfaces and indecomposable Lefschetz fibrations
Abstract: Ruled surfaces play an important role in the theory of Lefschetz fibrations. In fact, Lefschetz fibrations on blow-ups of ruled surfaces have given many interesting examples. In this talk, we give a relation among the genus of the base space of blow-ups of a ruled surface admitting a Lefschetz fibration, the number of blow-ups and the genus of the Lefschetz fibration. Using this relation, we obtain a condition for a Lefschetz fibration to be fiber sum indecomposable. Moreover, we give fiber sum indecomposable Lefschetz fibrations on minimal total spaces.

Carl-Fredrik Nyberg-Brodda *KIAS*
Title: On the freeness problem for parabolic subgroups of $\mathrm{SL}(2,\mathbb{C})$
Abstract: I will report on some recent results on the freeness problem for parabolic subgroups of $\mathrm{SL}(2,\mathbb{C})$.

Makoto Ozawa *Komazawa University*
Title: Critical complexes for the 3-sphere
Abstract: A simplicial complex is said to be *critical* for the 3-sphere S^3 if it cannot be embedded in S^3 but after removing any one point, it can be embedded.

We show that if a multibranched surface cannot be embedded in S^3, it contains a critical complex which is a union of a multibranched surface and a (possibly empty) graph. We exhibit all critical complexes which are contained in $K_5 \times S^1$ and $K_{3,3} \times S^1$ families. We also classify all critical complexes which have a form $(G \times S^1) \cup H$, where G and H are graphs.

In spite of the above property, there exist complexes which cannot be embedded in S^3, but they do not contain any critical complexes. From the property of those examples, we define an equivalence relation on all simplicial complexes $\mathcal{C}$ and a partially ordered set of complexes $(\mathcal{C}/\sim; \subseteqq)$, and refine the definition of critical. According to the refined definition of critical, we show that if a complex X cannot be embedded in S^3, then there exists $[X'] \subseteqq [X]$ such that $[X']$ is critical for $[S^3]$.

This is a joint work with Mario Eudave-Muñoz.

Kyungbae Park *Kangwon National University*

Title: Alexander polynomial of twisted torus knots

Abstract: Twisted torus knots are a generalization of torus knots obtained by introducing additional full twists to adjacent strands of torus knots. In this talk, we present an explicit formula for the Alexander polynomial of twisted torus knots. We use a presentation of the knot group of twisted torus knots and Fox's free differential calculus. We further explore the applications of our computations, including a determination of the genus for certain families of twisted torus knots. This is joint work with Adnan.

Andreani Petrou *OIST*

Title: Factorisation of the Harer-Zagier transform for HOMFLY-PT polynomials

Abstract: I will talk about the Laplace transform of the HOMFLY-PT polynomial for knots, called the Harer-Zagier (HZ) transform, which is a function of two variables λ and q. For some special families of knots it admits a fully factorised form. This is not true, however, for the majority of knots, for which it can only be decomposed as a sum of factorised terms. An interesting relation between this decomposition and Khovanov homology will be discussed. Notwithstanding, we suggest that by fixing the variable $\lambda = q^n$, for some "magical" exponent n, the HZ transform of any knot can obtain a factorised form in terms of cyclotomic polynomials. Moreover, I will talk about the zeros of HZ transform which show an interesting behavior.

Toshio Saito *Joetsu University of Education*
Title: Exceptional or half-integral chirally cosmetic surgeries
Abstract: A pair of Dehn surgeries on a knot is called chirally cosmetic if they yield orientation-reversingly homeomorphic 3-manifolds. In this talk, based on several restrictions previously obtained, I will talk about exceptional or half-integral chirally cosmetic surgeries. This is joint work with Kazuhiro Ichihara.

Kento Sakai *Osaka University*
Title: Degeneration of hyperbolic ideal polygons along harmonic map rays
Abstract: Let S be a surface of hyperbolic type and X be a complex structure on S. If S is a closed surface, Wolf constructed a homeomorphism between the Teichmüller space $\mathcal{T}(S)$ of S and the vector space of holomorphic quadratic differentials on X via harmonic maps between surfaces. A ray in the vector space of the holomorphic quadratic differentials determines the one-parameter family of hyperbolic surfaces through that homeomorphism. The one-parameter family is called the harmonic map ray. He also showed that a harmonic map ray converges to an $\mathbb{R}$-tree in the sense of equivariant Gromov-Hausdorff convergence if taking a lift to the universal covering and properly rescaling the hyperbolic metrics. In this talk, I will introduce the analogue result in the case that S is a hyperbolic ideal polygon, which is based on Gupta's result about the coordinates of the Teichmüller spaces of hyperbolic surfaces with crowns via harmonic maps. We consider a pointed Gromov-Hausdorff convergence instead of the equivariant version, since a hyperbolic ideal polygon does not have any nontrivial action by the surface group.

Takuya Sakasai *The University of Tokyo*
Title: On groups of Kim-Manturov
Abstract: We consider some groups related to the group Γ_n^4 defined by S. Kim and V. O. Manturov. We discuss their structures (subgroups, generating sets and so on) from the group theoretical point of view. This is a joint work with Kokoro Tanaka and Yuuki Tadokoro.

Dounnu Sasaki *Gakushuin University*
Title: Counting subgroups via Mirzakhani's curve counting
Abstract: Given a closed hyperbolic surface Σ of genus g, Mirzakhani proved that the number of closed geodesics of length at most L and of a given type is asymptotic to cL^{6g-6} for some $c > 0$. Since a closed geodesic corresponds to a conjugacy class of

the fundamental group $\pi_1(\Sigma)$, we extend this to the counting problem of conjugacy classes of finitely generated subgroups of $\pi_1(\Sigma)$. Using 'half the sum of the lengths of the boundaries of the convex core of a subgroup' instead of the length of a closed geodesic, we find that the number of such conjugacy classes is similarly asymptotic to cL^{6g-6} for some $c > 0$. Furthermore, we argue that this measurement for subgroups is 'natural' within the framework of subset currents, which is a completion of weighted conjugacy classes of finitely generated subgroups of $\pi_1(\Sigma)$.

Mai Sato *Tsuda University*
Title: Equivalence classes of $\mathrm{Rot}\,\mathbb{E}^2$-colorings of a diagram of a torus knot
Abstract: For each quandle X, it is well-known that there is a bijection between the sets of X-colorings of two oriented knot diagrams which are related to each other by a finite sequence of Reidemeister moves and planar isotopies. In this talk, we introduce an equivalence relation, named R-equivalence, on the set of X-colorings of an oriented knot diagram utilizing these bijections. We further determine the R-equivalence classes of $\mathrm{Rot}\,\mathbb{E}^2$-colorings, satisfying a certain condition, of a diagram of a torus knot. Here, $\mathrm{Rot}\,\mathbb{E}^2$ is a quandle consisting of the rotational transformations of the Euclidean plane $\mathbb{E}^2$.

Xiaobing Sheng *Okinawa Institute of Science and Technology*
Title: Some experimental results of knots and links constructed from Thompson's group F a la Jones
Abstract: Vaughan Jones, in his late years, motivated by an attempt to develop new conformal field theory, obtained unitary representations of Thompson's groups F and T and these results further stimulated researches on Jones construction, from both the aspect of pure maths and mathematical physics.

As one of the consequences, Jones found a rather concrete way of constructing knots and links from Thompson's group F as an analogue of results on braid groups. Aiello and Baader extended these results to the positive oriented Thompson's group $\overrightarrow{F}$ which is isomorphic to Higman (Brown-) Thompson group F_3.

In this talk, I would like to present a sequence of computational results on certain sequences of knots and links constructed from certain sequences of words in F and we also provide a way of estimating the number of crossings from some group theoretic property.

Tatsumasa Suzuki *Tokyo Institute of Technology*
Title: The d-invariants of Brieskorn homology 3-spheres with almost simple linear graphs
Abstract: In 2003, Ozsváth and Szabó introduced an invariant of rational homology spin^c cobordisms called a d-invariant. In 2020, Karakurt and Şavk investigated the d-invariant of any Brieskorn homology 3-sphere $\Sigma(p,q,r)$ with $pq+pr-qr=1$. These homology 3-spheres have surgery diagrams that can be regarded as almost simple linear graphs. They derived concrete calculation results with p even and a formula with p odd. In this talk, we find a sharper evaluation formula when p is odd and present some sufficient conditions for the equality of this formula.

Natsuya Takahashi *Osaka University*
Title: Exotic 4-manifolds with small trisection genus
Abstract: A trisection genus is an integer-valued invariant of smooth 4-manifolds, which can be considered as a 4-dimensional analogue of Heegaard genus for 3-manifolds. Lambert-Cole and Meier conjectured that any exotic pair of 4-manifolds has the same trisection genus. In this talk, we will give an exotic pair of 4-manifolds with boundary that satisfies the conjecture. The trisection genus of our exotic pair is 4, which is the smallest value known to date.

Akihiro Takano *The University of Tokyo*
Title: The p-colorable subgroup of Thompson's group F
Abstract: Recently, Jones introduced a method of constructing knots and links from elements of Thompson's group F by using its unitary representations. He also defined a subgroup of F as the stabilizer subgroup, called the 3-colorable subgroup. We proved that all knots and links obtained from non-trivial elements of this group are 3-colorable. In this talk, we extend this result to any odd integer p greater than two. Namely, we define the p-colorable subgroup of F whose non-trivial elements yield p-colorable knots and links, and show that it is isomorphic to the Brown–Thompson group. This is joint work with Yuya Kodama (Tokyo Metropolitan University).

Kokoro Tanaka *Tokyo Gakugei University*
Title: The second quandle homology group of the knot n-quandle
Abstract: The knot quandle is known to be a complete invariant for oriented classical knots up to orientation. Eisermann computed the second quandle homology group of the knot quandle and showed that it characterizes the unknot. In this talk, we

compute the second quandle homology group of the knot n-quandle for each integer $n > 1$, where the knot n-quandle is a certain quotient of the knot quandle. Although the knot n-quandle is weaker than the knot quandle, the second homology group of the former is found to have more information than that of the latter. As one of the consequences, it follows that the second quandle homology group of the knot 3-quandle characterizes the unknot, the trefoil and the cinquefoil. This is a joint work with Yuta Taniguchi (Osaka University).

Motoo Tange *University of Tsukuba*
Title: Lens space surgeries on homology spheres of $\lambda = -2, -3$
Abstract: Berge listed lens space surgeries on S^3 in terms of doubly primitive construction in the 1990's. In 2009, Tange listed lens space surgeries on $\Sigma(2,3,5)$ by the same method. By Greene and Caudell it is proven that these examples are all lens spaces obtained from S^3 or $\Sigma(2,3,5)$. In this talk, we will list lens space surgeries $K_p = L(p,q)$ on homology spheres with the Casson invariants -2 or -3 up to $p \leq 1200$ by using doubly primitive construction. We conjecture that this list gives all lens spaces obtained from such homology spheres. This is a joint work with Tauchi Koichi.

Sohei Tateno *Nagoya University*
Title: On the Iwasawa-type formula for $\mathbb{Z}_p^d$-covers of links
Abstract: It is known that there are deep analogies between algebraic number theory and low dimensional topology. Hillman-Matei-Morishita, Kadokami-Mizusawa, and Ueki proved analogous theorems for links corresponding to Iwasawa's class number formula. In this talk, as Cuoco-Monsky generalized Iwasawa's formula to $\mathbb{Z}_p^d$-extensions, we will give asymptotic formulae for the first homology groups of $\mathbb{Z}_p^d$-covers of links. We will also describe the relationship between the characteristic element of the $\mathbb{Z}_p^c$-cover of a c-component link and those of $\mathbb{Z}_p^d$-subcovers of the link. This is a joint work with Jun Ueki.

Jun Ueki *Ochanomizu University*
Title: Profinite rigidity of the multivariable Alexander polynomials of links
Abstract: The multivariable Alexander polynomial of a d-component link in S^3 is determined by the isomorphism class of the link group up to $\mathrm{GL}_n\mathbb{Z}$-action on the variables. We study to what extent the polynomial is determined by the isomorphism

class of the profinite completion of the link group. This talk is based on a joint work with Biao Ma at Technion.

Yohei Wakamaki *Osaka University*
Title: Stabilizations of some small exotic rational surfaces
Abstract: A 4-manifold is called almost completely decomposable (ACD) if it becomes diffeomorphic to $k\mathbf{CP}^2\#l\overline{\mathbf{CP}^2}$ for some integers $k, l \geq 0$ after taking a connected sum with $\mathbf{CP}^2$. Although there are infinitely many examples of exotic 4-manifolds that are confirmed to be ACD, those with second Betti numbers less than 10 are relatively rare. In this talk, we show that an example of an exotic rational surface with the second Betti number $b_2 = 7, 8, 9$, and 10 (i.e., an exotic $\mathbf{CP}^2\#(b_2-1)\overline{\mathbf{CP}^2}$) is ACD. In particular, among known ACD exotic 4-manifolds with explicitly given Kirby diagrams, the above exotic $\mathbf{CP}^2\#6\overline{\mathbf{CP}^2}$ is the smallest in terms of the second Betti number. If time permits, we also discuss a similar result that an exotic $\mathbf{CP}^2\#5\overline{\mathbf{CP}^2}$ becomes diffeomorphic to $2\mathbf{CP}^2\#6\overline{\mathbf{CP}^2}$ after taking a connected sum with $S^2 \times S^2$.

Junhua Wang *Jiangsu University of Technology*
Title: Small difference between tunnel numbers of cable knots and their companions
Abstract: In this talk, we will give a sufficient and necessary condition which is called p/q-primitive for when the tunnel number of a p/q-cable knot equals to that of its companion. This is a joint work with Wenjie Diao and Yanqing Zou.

Zhongzi Wang *Peking University*
Title: Extendability over the 4-sphere and invariant spin structures of surface automorphisms
Abstract: I will talk about recent development on the topic indicated by the title. The talk is based on joint papers with Shicheng Wang and with Weibiao Wang.

Zixi Wang *Zhejiang Normal University*
Title: Profinite rigidity and flexibility of some branched twisted spin 2-knots
Abstract: It has been recently focused that whether some given manifold could be distinguished by the collection of its finite covers, i.e. by the profinite completion of its fundamental group. We care about one class of 4-dimensional manifolds which are complement of branched spin 2-knots and give some results about the condition for them to be profinitely rigid or flexible.

Xiaolei Wu *Fudan University*
Title: Compactly-supported classes in the homology of big mapping class groups
Abstract: I will start the talk with an overview about the theory of big mapping class groups. Then I will discuss some recent advances on the homology of big mapping class groups. In particular, I want to talk about some of recent work with Martin Palmer on when a homology class of the big mapping class groups could have compact support.

Kouki Yamaguchi *Kyoto University*
Title: On the 3-loop polynomial of genus 1 knots with trivial Alexander polynomial
Abstract: The Kontsevich invariant of knots is an universal invariant among all quantum invariants and all Vassiliev invariants. The Kontsevich invariant is expanded in the special form which is called the loop expansion, and its 3-loop part is presented by the 3-loop polynomial (3-loop invariant). In this talk, we give a restriction of the set of possible values of the 3-loop polynomials of genus 1 knots with trivial Alexander polynomial. As a special case, we present the 3-loop polynomial of any genus 1 knot with trivial (≤ 2)-loop polynomials by using five Vassiliev invariants of the knot. Further, we give a new example of the calculation of the 3-loop polynomial.

Wenyuan Yang *Peking University*
Title: Limit sets for branching random walks on relatively hyperbolic groups
Abstract: Branching random walks (BRW) on groups consist of two independent processes on the Cayley graphs: branching and movement. Start with a particle on a favorite location of the graph. According to a given offspring distribution, the particles at the time n split into a random set of particles with mean $r \geq 1$, each of which then moves independently with a fixed step distribution to the next locations. It is well-known that if the offspring mean r is less than the spectral radius of the underlying random walk, then BRW is transient: the particles are eventually free on any finite set of locations. The particles trace a random subgraph which accumulates to a random subset called limit set in a boundary of the graph. In this talk, we consider BRW on relatively hyperbolic groups and study the limit set of the trace at the Bowditch and Floyd boundaries. In particular, the Hausdorff dimension of the limit set will be computed. This is based on a joint work with Mathieu Dussaule and Longmin Wang.

Xiliu Yang *Peking University*
Title: Knot Floer homology and the fundamental group of (1,1) knots
Abstract: Knot Floer homology is a categorification of the Alexander polynomial of knots introduced independently by Ozsvath and Szabo and by Rasmussen. The explicit relationship between the fundamental group and the knot Floer homology is one of the fundamental questions about Heegaard Floer homology raised by Ozsvath and Szabo. In this talk, I will explain our recent progress on this question for (1,1) knots. We give an algorithm for computing the knot Floer homology of a (1,1) knot from a particular presentation of its fundamental group. This is joint work with Jiajun Wang.

Jumpei Yasuda *Osaka University*
Title: Alexander theorem on surfaces in the 4-ball using knitted surfaces
Abstract: Knits (or BMW-tangles) are tangles in a cylinder obtained from braids by splicing for some crossings. In this talk, we generalize knits for surface-knot theory as knitted surfaces (or BMW surfaces). These surfaces are properly embedded surfaces in the 4-ball with non-empty boundaries. We show that every properly embedded surface in the 4-ball with a non-empty boundary is ambiently isotopic to a knitted surface. This is joint work with Inasa Nakamura (Saga University).

Leo Yoshioka *The University of Tokyo*
Title: Non-trivial cycles of the spaces of long embeddings detected by 2-loop graphs
Abstract: In this talk, we introduce machinery to give geometric and non-trivial (co)cycles of the spaces of long embeddings. We construct these cocycles by integral over configuration spaces associated with 2-loop graphs. This framework is a generalization of several works for 1-loop graphs by Bott, Cattaneo, Rossi, Sakai and Watanabe. Using 2-loop graphs, we obtain higher-degree cocycles of long embeddings, even with codimension two. The non-triviality of the cocycles is shown by counting graphs on some diagrams. If time permits, we compare our 2-loop graphs with hairy graphs, which Arone and Turchin introduced in embedding calculus.

Bin Yu *Tongji University*
Title: Self orbit equivalences on a class of Anosov flows
Abstract: Let M_k ($k \in Z$ and $|k| > 4$) be the 3-manifold obtained by doing k Dehn surgery on the figure-eight knot, and X_t be the canonical Anosov flow on M_k that is constructed by Goodman. In this talk, I will explain a brief proof of the following

result: if $|k| \gg 0$, then $Mod(M_k) \cong Z_4$ and every element of the mapping class group of M_k can be represented by a self orbit equivalence of X_t. This answered a question asked by Barthelme and Mann.

Ying Zhang *Soochow University*
Title: Length minima for an infinite family of filling closed curves on a one-holed torus
Abstract: We explicitly find the minima as well as the minimum points of the geodesic length functions for the family of filling (hence non-simple) closed curves, $a^2b^n(n \geq 3)$, on a complete one-holed hyperbolic torus in its relative Teichmüller space, where a, b are simple closed curves on the one-holed torus which intersect exactly once transversely. This provides concrete examples for the problem to minimize the geodesic length of a fixed filling closed curve on a complete hyperbolic surface of finite type in its relative Teichmüller space. This is joint work with Zhongzi Wang.

Yanqing Zou *Tongji University*
Title: Some results of tunnel numbers of satellite knots
Abstract: We will show our recent results on tunnel numbers of satellite knots and their companions. This is a joint work with Wang Junhua, Diao Wenjie and Yan Chunxing.

5. List of Participants

Katsunori Arai (Osaka University)

Yongju Bae (Kyungpook National University)

Jean-Baptiste Bellynck (Osaka University)

Jae Choon Cha (POSTECH)

Wonjun Chang (POSTECH)

Haimiao Chen (Beijing Technology and Business University)

Zhechi Cheng (Wuhan University)

Zhiyun Cheng (Beijing Normal University)

Sangbum Cho (Hanyang Unversity)

Seonmi Choi (Kyungpook National University)

Ryoga Furutani (Hiroshima University)

Honghao Gao, (Tsinghua University)

Yue Gao (Anhui Normal University)

Stavros Garoufalidis (Southern University of Science and Technology)

Noriyuki Hamada (Kyushu University)

Mikami Hirasawa (Nagoya Institute of Technology)

Kazuhiro Ichihara (Nihon University)

Shotaro Imachi (Kyoto University)

Ayumu Inoue (Tsuda University)

Kamolphat Intawong (National Institute of Technology, Ibaraki College)

Ingrid Irmer (Southern University of Science and Technology)

Katsumi Ishikawa (RIMS, Kyoto University)

Goo Ishikawa (Hokkaido University)

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Tetsuya Ito (Kyoto University)

Kentaro Iwai (Kyoto University)

Wonyong Jang (KAIST)

Jinho Jeoung (Seoul National University)

Gyo Taek Jin (KAIST)

Hongtaek Jung (Seoul National University)

Teruhisa Kadokami (Kanazawa University)

Naoko Kamada (Nagoya City University)

Seiichi Kamada (Osaka University)

Sungkyung Kang (University of Oxford)

Sungmo Kang (Chonnam National University)

Shunsuke Kano (Tohoku University)

Hiroaki Karuo (Gakushuin University)

Yasushi Kasahara (Kochi University of Technology)

Mai Katada (Kyushu University)

Akishi Kato (The University of Tokyo)

Kengo Kawamura (Osaka Sangyo University)

Byeorhi Kim (POSTECH)

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Min Hoon Kim (Kyungpook National University)

Minkyu Kim (KIAS)

Sang-hyun Kim (KIAS)

Se-Goo Kim (Kyung Hee University)

Seungwon Kim (Sungkyunkwan University)

Naoki Kimura (Waseda University)

Eiko Kin (Osaka University)

Unhou Kin (Nagoya City University)

Takahiro Kitayama (University of Tokyo)

Ryoma Kobayashi (National Institute of Technology, Ishikawa College)

Yuya Koda (Keio University)

Toshitake Kohno (Meiji University)

Jin Kosaka (Osaka University)

Andrew Kricker (Nanyang Technological University)

Hajime Kubota (Kyoto University)

Erika Kuno (Osaka University)

Thang Le (Georgia Institute of Technology)

Gye-Seon Lee (Seoul National University)

Jaewon Lee (KAIST)

Jung Hoon Lee (Jeonbuk National University)

Fengchun Lei (Dalian Univerisity of Technology)

Fengling Li (Dalian Univerisity of Technology)

Ping Li (Fudan University)

Yanlin Li (Hangzhou Normal Unniversity)

Youlin Li (Shanghai Jiao Tong University)

Yi Liu (Peking University)

Jiming Ma (Fudan University)

Langte Ma (Shanghai Jiao Tong University)

Shuhei Maruyama (Kanazawa University)

Ryo Matsuda (Kyoto University)

Yukio Matsumoto (Gakushuin University)

Ryosuke Miki (Osaka University)

Naoyuki Monden (Okayama University)

Gabriel Montoya-Vega (CUNY Graduate Center and University of Puerto Rico-Rio Piedras)

Kimihiko Motegi (Nihon University)

Jun Murakami (Waseda University)

Inasa Nakamura (Saga University)

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Ruifeng Qiu (East China Normal University)

Toshio Saito (Joetsu University of Education)

Kento Sakai (Osaka University)

Takuya Sakasai (The University of Tokyo)

Dounnu Sasaki (Gakushuin University)

Mai Sato (Tsuda University)

Shota Segawa (Osaka University)

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Motoo Tange (University of Tsukuba)

Yuta Taniguchi (Osaka University)

Sohei Tateno (Nagoya University)

Haruchika Tsuno (Osaka University)

Yudai Ueda (RIMS, Kyoto University)

Jun Ueki (Ochanomizu University)

Yohei Wakamaki (Osaka University)

Jiajun Wang (Peking University)

Junhua Wang (Jiangsu University of Technology)

Shicheng Wang, (Peking University)

Zhongzi Wang (Peking University)

Zixi Wang (Zhejiang Normal University)

Tadayuki Watanabe (Kyoto University)

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