丘成桐数学科学中心
YAU MATHEMATICAL SCIENCES CENTER

TSIMF
清华三亚国际数学论坛

几何拓扑及相关主题

Geometric topology and their related topics

March 13-17, 2025

Room A-211, TSIMF

Organizers

Jia Kong(孔嘉),Zhejiang University

Jianfeng Lin(林剑锋),Tsinghua University

Zhe Sun(孙哲),University of Science and Technology of China

Yunhui Wu(吴云辉),Tsinghua University

Contents

About the conference

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Abstract

The conference, themed "Geometric Topology and Related Topics," aims to promote frontier research in the field of geometric topology and interdisciplinary communication in general geometry and topology. As a vibrant and significant area of mathematical research, geometric topology deals with the complex structures and properties of multi-dimensional spaces, spanning a wide range of topics from low-dimensional to high-dimensional topology. This workshop provides a platform for researchers and students to come together, discuss the latest developments in geometric topology, share research findings, and foster academic collaboration.

The conference will focus on the following key topics:

Teichmüller Theory and higher Teichmüller Theory: Research will center on two-dimensional geometric topology, particularly the study of Teichmüller theory, quadratic differentials, mapping class groups, moduli spaces, random hyperbolic surface, higher Teichmüller theory.

Classification Problems and Theoretical Frameworks: Three-dimensional and four-dimensional geometric topology will be another central theme, addressing classification problems of topological spaces in these dimensions, and the mathematical theoretical frameworks involved.

Connections Between Geometric Topology and Homotopy Theory: The relationship between high-dimensional geometric topology and homotopy theory remains a key area of research. This session will further investigate the application of homotopy theory in high-dimensional topology, with a particular focus on the topological perspectives of motivic homotopy theory.

Geometric topology is a quite active research field in modern mathematics. In the current research, the two dimensional geometric topology studies about the Riemann surfaces, Teichmüller theory, moduli spaces and their dynamic systems, the 3 and 4 dimensional geometric topology concerns the classification problems, while the higher dimensional geometric topology relates to the motivic homotopy theory. This workshop will bring together experts to talk about recent developments in these related fields, discuss further questions of mutual interest, and seek possible new cooperation. More importantly, to encourage young mathematicians to participate more in these communities, we would like to make enough rooms for young scholars, including Postdocs and PhD students, to present their recent works or even work-in-progress. We believe TSIMIF is a perfect location for this purpose.

Description of the aim

This conference aims to bring together leading scholars in contemporary geometric topology to provide a high-level platform for exchanging ideas and discussing the latest advancements in the field. It will gather top researchers and emerging scholars from around the world to explore new developments in geometric topology. Our main objectives include:

1. Exploring new Developments

Geometric topology has undergone significant transformations in recent years, with breakthrough methods emerging in higher-dimensional spaces. This workshop aims to provide a comprehensive discussion of these innovative methods, with a focus on:

Recent developments in Teichmüller space

Recent developments in higher Teichmüller space

Classification problems in low-dimensional topology

Motivic homotopy theory and its geometric interpretation

2. Interdisciplinary Dialogue

We are committed to creating a powerful knowledge-sharing platform that allows researchers to:

Share recent research findings: Through presentation sessions, participants will have the opportunity to present their work in detail and receive feedback from their peers.

Identify potential collaborative research opportunities: The conference will provide spaces for informal interactions, group discussions, and networking, where attendees can explore complementary aspects of their research and uncover potential cross-disciplinary and cross-team collaborations. This will promote synergistic innovation in the field of geometric topology.

Connect different subfields of geometric topology: By structuring the academic program, we aim to create dialogue platforms for researchers working in different branches of geometric topology, such as 2-dimensional, low-dimensional, and high-dimensional geometric topology. This will encourage participants to share the latest progress in their respective areas and explore potential pathways for cross-disciplinary research.

3. Nurturing Emerging Talent

A major highlight of this workshop is the special support for early-career mathematicians. The conference will provide focused opportunities for postdoctoral researchers and PhD students to present their latest research, including ongoing projects. This approach not only highlights emerging talent but also promotes knowledge exchange and potential future collaborations. Our plans include:

Providing speaking opportunities for postdoctoral and PhD researchers Offering opportunities for postdoctoral and PhD researchers to show their new work.

Schedule

Time&Date	March 14 Friday	Time&Date	March 15 Saturday	Time&Date	March 16 Sunday
7:30~8:30	**Breakfast**				
8:50-9:00	开幕式				
Chair	王诗成	Chair	邱瑞锋	Chair	王家军
9:00-9:45	杨文元	9:00-9:45	许斌	9:00-9:45	吴惟为
10:00-10:45	苏伟旭 Group Photo	10:00-10:45	段志鹏	10:00-10:45	江怡
10:45-11:15	Coffee Break				
Chair	吴云辉	Chair	林剑锋	Chair	孙哲
11:15-12:00	贺宇昕	11:15-12:00	王中子	11:15-12:00	张皓皓
12:00-13:30	**Lunch**				
Chair	李平	Chair	张影	Chair	高红铸
14:30-15:15	谢羿	14:00-14:45	汪湜	14:30-15:15	古星
15:15-15:45	Coffee Break			15:15-15:45	Coffee Break
Chair	孔嘉	Chair	周泽	Chair	葛化彬
15:45-16:30	李谷川	15:00-15:45	潘宇	15:45-16:30	韩肖垄
17:30-19:00	Dinner	15:45-16:15	Coffee Break	17:30-19:00	Dinner
Student talks Chair	林剑锋	Chair	赵学志	Student talks Chair	孙哲
18:50-19:15	万仁星	16:15-17:00	潘会平	18:50-19:15	史尚君
19:15-19:40	汪楚文	17:30-	**Banquet**	19:15-19:40	陈皓
19:40-20:05	周朴淳			19:40-20:05	王朔
20:05-20:30	陈家煌			20:05-20:30	吕源玖
20:30-20:55	王鹏			20:30-20:55	范骜文
20:55-21:20	张慎行			20:55-21:20	胥夫鹏

March 14, 2025 - Friday

Time(日期)	Name(报告人)	Title(报告题目)
7:30~8:30	**Breakfast**	
8:50-9:00	开幕式	
Chair	王诗成	
9:00-9:45	杨文元	Counting problems in groups with contracting elements
10:00-10:45	苏伟旭	Every closed surface of genus at least 18 is Loewner
Group Photo		
10:45-11:15	Coffee Break	
Chair	吴云辉	
11:15-12:00	贺宇昕	Averages of determinants of Laplacians over moduli spaces for large genus
12:00-13:30	**Lunch**	
Chair	李平	
14:30-15:15	谢羿	On the mapping class groups of 4-manifolds with 1-handles
15:15-15:45	Coffee Break	
Chair	孔嘉	
15:45-16:30	李谷川	Periodic Phenomena in the C-Motivic Sphere Spectrum
17:30-19:00	Dinner	
Student talks Chair	林剑锋	
18:50-19:15	万仁星	Marked length spectrum rigidity in groups with contracting elements
19:15-19:40	汪楚文	Recent advances in the Volume Conjecture
19:40-20:05	周朴淳	Combinatorial Ricci flows on infinite disk triangulations
20:05-20:30	陈家煌	Z/2 Harmonic 1-Forms and 3-Manifold Topology
20:30-20:55	王鹏	Iwip endomorphisms of free groups and fixed points of graph selfmaps
20:55-21:20	张慎行	Thurston measure of unit balls associated to quadratic differentials

March 15, 2025 - Saturday

Time(日期)	Name(报告人)	Title(报告题目)
7:30~8:30	**Breakfast**	
Chair	邱瑞锋	
9:00-9:45	许斌	黎曼面上 A 型 Toda 系统的有限能量解
10:00-10:45	段志鹏	Picard groups of higher real K-theories
10:45-11:15	Coffee Break	
Chair	林剑锋	
11:15-12:00	王中子	Shortest filling geodesics on hyperbolic surfaces
12:00-13:30	**Lunch**	
Chair	张影	
14:00-14:45	汪湜	Homological dimension of discrete subgroups in higher rank Lie groups
Chair	周泽	
15:00-15:45	潘宇	Reverse Lagrangian surgeries
15:45-16:15	Coffee Break	
Chair	赵学志	
16:15-17:00	潘会平	Harmonic map rays and Jenkin-Serrin problem
17:30-	**Banquet**	

March 16, 2025 - Sunday

Time(日期)	Name(报告人)	Title(报告题目)
7:30~8:30	**Breakfast**	
Chair	王家军	
9:00-9:45	吴惟为	C^0-closedness of $Symp_0(X)$
10:00-10:45	江怡	Free circle actions on highly connected (2n+1)-manifolds
10:45-11:15	Coffee Break	
Chair	孙哲	
11:15-12:00	张皓皓	Spectral gaps on thick part of moduli spaces
12:00-13:30	**Lunch**	
Chair	高红铸	
14:30-15:15	古星	Chern Classes of the conjugation representations and invariant polynomials
15:15-15:45	Coffee Break	
Chair	葛化彬	
15:45-16:30	韩肖垒	Nearly geodesic surfaces are filling
17:30-19:00	Dinner	
Student talks Chair	孙哲	
18:50-19:15	史尚君	Kauffman bracket skein module of small Seifert manifolds
19:15-19:40	陈皓	The symmetry of Heegaard splittings
19:40-20:05	王朔	A note on the existence of solutions to Hitchin's self-duality equations
20:05-20:30	吕源玖	Counting Rational Curves and Standard Complex Structures on HyperKahler ALEs
20:30-20:55	范骜文	On the Kelly Monoidal Structure of Λ-sequences
20:55-21:20	胥夫鹏	Free circle actions on certain simply connected 7−manifolds

Titles and Abstracts

Counting problems in groups with contracting elements

杨文元
北京大学

In this talk, we shall study a class of groups with contracting elements and survey several counting results in this class of groups. We will explain a basic tool called extension lemma in obtaining those counting results. This tool could be thought of as an orbit closing lemma in group theory.

Every closed surface of genus at least 18 is Loewner

苏伟旭
中山大学

We obtain an improved upper bound involving the systole and area for the volume entropy of a Riemannian surface. As a result, we show that every orientable and closed Riemannian surface of genus at least 18 satisfies Loewner's systolic ratio inequality. We also show that every closed orientable and nonpositively curved Riemannnian surface of genus at least 11 satisfies Loewner's systolic ratio inequality. This is a joint work with Qiongling Li.

Averages of determinants of Laplacians over moduli spaces for large genus

贺宇昕
清华大学

Let $\mathcal{M}_g$ be the moduli space of hyperbolic surfaces of genus g endowed with the Weil-Petersson metric. We view the regularized determinant $\log\det(\Delta_X)$ of Laplacian as a function on $\mathcal{M}_g$ and show that there exists a universal constant $E>0$ such that as $g\to\infty$,

(1) the expected value of $\left|\frac{\log\det(\Delta_X)}{4\pi(g-1)}-E\right|$ over $\mathcal{M}_g$ has rate of decay $g^{-\delta}$ for some uniform constant $\delta\in(0,1)$;

(2) the expected value of $\left|\frac{\log\det(\Delta_X)}{4\pi(g-1)}\right|^{\beta}$ over $\mathcal{M}_g$ approaches to E^{β} whenever $\beta\in[1,2)$.

This is a joint work with professor Yunhui Wu.

On the mapping class groups of 4-manifolds with 1-handles

谢羿
北京大学

Budney and Gabai proved that the mapping class group of the product of a circle and a 3-dimensional disk is an abelian group of infinite rank. Their proof relies on an invariant defined using the configuration spaces of ordered points. In this talk, we will generalize Budney-Gabai's invariant and use it to demonstrate that the smooth and topological mapping class groups of certain 4-manifolds with 1-handles contain infinite rank abelian subgroups. This is joint work with Jianfeng Lin and

Boyu Zhang.

Periodic Phenomena in the C-Motivic Sphere Spectrum

李谷川
北京大学

Through the J-homomorphism, Bott periodicity reveals a periodic structure in the stable homotopy groups of spheres, offering key insights into problems such as vector fields on spheres. In the motivic setting, the Hopf map η is non-nilpotent and gives rise to the first exotic periodicity, which has been studied by Bachmann and Hopkins. In this talk, we present a study of the second exotic periodic phenomenon in the C-motivic sphere. This is joint work with Dan Isaksen, Hana Jia Kong, Yangyang Ruan, and Heyi Zhu.

Marked length spectrum rigidity in groups with contracting elements

万仁星
华东师范大学

The marked length spectrum (MLS) of a closed negatively curved Riemannian manifold M is a function defined on $\pi_1(M)$ that maps each conjugacy class to the length of its geodesic representative. The well-known marked length spectrum rigidity conjecture states that if two negatively curved Riemannian metrics on a closed manifold have the same marked length spectrum, then they are isometric. In this talk, we introduce a coarse-geometric version of MLS rigidity problem in GGT and give an affirmative answer to groups with contracting elements. This is joint work with Xiaoyu Xu and Wenyuan Yang.

Recent advances in the Volume Conjecture

汪楚文
中国人民大学

I will introduce different versions of the volume conjecture, including the Kashaev-Murakami-Murakami volume conjecture, the Chen-Yang volume conjecture, and the SU(n) volume conjecture by Chen-Liu-Zhu. I will also present recent progress on these volume conjectures. Some techniques for proving the volume conjectures will be discussed as well.

Combinatorial Ricci flows on infinite disk triangulations

周朴淳
复旦大学

In this talk, we introduce combinatorial Ricci flows (CRF) in Euclidean and hyperbolic background geometries on infinite disk triangulations, which are discrete analogs of Ricci flows on simply connected open surfaces. We establish the well-posedness results of CRF in both Euclidean and hyperbolic background geometries. We further prove two convergence results of CRF for both

recurrent and transient triangulations, which indicate a uniformization theorem for CRF on infinite disk triangulations. As an application, we prove an existence result of circle-packing metrics with infinite prescribed cone angles in hyperbolic background geometry. This report is from the joint work of Huabin Ge and Bobo Hua.

Z/2 Harmonic 1-Forms and 3-Manifold Topology

陈家煌
中国科学院

The concept of Z/2 harmonic 1-forms, introduced by Clifford Taubes, plays a key role in generalizing the Uhlenbeck compactness theorem. These 1-forms can be regarded as the 3-dimensional analog of quadratic differentials, and can be used to compactify the SL(2, C) character variety . In this talk, we will explore intriguing connections and open questions linking Z/2 harmonic 1-forms to the topology of 3-manifolds.

Iwip endomorphisms of free groups and fixed points of graph selfmaps

王鹏
西安交通大学

In a paper from 2011, Jiang, Wang and Zhang studied the fixed points and fixed subgroups of graph selfmaps on a connected finite graph or a connected compact hyperbolic surface X. In particular, they proved that a certain quantity defined in terms of characteristics and indices of fixed point classes of selfmaps on X is bounded below by $2\chi(X)$, where $\chi(X)$ is the Euler characteristic of X. In this talk, we give a sufficient condition for when equality holds and we partially answer a question of Jiang. We do this by studying iwip outer endomorphisms of free groups acting on stable trees. This is a joint work with Qiang Zhang

Thurston measure of unit balls associated to quadratic differentials

张慎行
复旦大学

In 2008, Mirzakhani introduced Mirzakhani function to study the counting problem of simple closed curves on hyperbolic surfaces, and proved its properness and integrability. Precisely, the function is defined by the Thurston measure of the unit ball associated to hyperbolic length function in the measured lamination space.
Similarly, a quadratic differential defines a flat metric on a closed surface of genus ≥ 2 and a flat length function in the measured lamination space. Consider the Thurston measure of the unit ball associated to the flat length function, which becomes a function on the moduli space of quadratic differentials. We study the asymptotic behaviour of the function when a family of quadratic differentials goes to the boundary of the moduli space under the Deligne-Mumford compactification, and give an upper and lower bound of the function, which depends on the comparision between the flat structure and its hyperbolic structure. Finally, we investigate its integrability. This is a joint work with Weixu Su.

黎曼面上 A 型 Toda 系统的有限能量解

许斌
中国科学技术大学

户田盛和于 1967 年奠基的一维 Toda 系统，通过常微分方程组刻画了具有指数势的弹簧振子链的动力学规律。随着理论发展，该模型被拓展至二维情形，并逐渐显露出其与黎曼曲面到李群或对称空间的调和映射理论之间的深刻对应关系。值得说明的是，系统的核心动力学特征由对应复单李代数的 Cartan 矩阵所决定， 其中 A 型 Toda 系统尤为特殊地实现了 Liouville 方程（描述球度量）向高维情形的自然推广。本次报告将重点汇报黎曼曲面背景下 A 型 Toda 系统有限能量解研究的若干进展：首先探讨穿孔圆盘与穿孔复平面情形下解的精细分类问题；其次详述在紧黎曼曲面框架中，通过非退化亚纯一形式组与锥球度量构造新型解族的两类方法；最后分析此类曲面上解存在的普吕克型必要条件。文中所述成果是与牟景宇、史毅茜、孙天阳及魏春晖合作研究的阶段性工作，其中部分结论尚待进一步完善。

Picard groups of higher real K-theories

段志鹏
南京师范大学

Higher real K-theories, as the homotopy fixed point of Lubin-Tate theories, capture significant periodic information about the stable homotopy groups of spheres. These theories also play an important role in both topology and geometry. In this talk, we explore the Picard groups of higher real K-theories, offering two distinct approaches to studying these groups at general heights: the equivariant approach and the algebraic approach. Additionally, we provide a complete answer to the Picard group of $E_4^{hC_4}$, which serves as a counterexample to the conjecture that all Picard groups of this type arise from suspensions by equivariant spheres.

Shortest filling geodesics on hyperbolic surfaces

王中子
北京大学

The minimal length of filling geodesics on genus g hyperbolic surfaces equals the half of the perimeter of the right-angled $(8g-4)$-gon. This minimum can be realized by a single geodesic. This is a joint work with Yue Gao and Jiajun Wang.

Homological dimension of discrete subgroups in higher rank Lie groups

汪湜
上海科技大学

Given a discrete subgroup H in a higher rank non-compact simple real Lie group G. We show that either H is a lattice in G, or the homological dimension of H is bounded above by (n-1/8r), where n is the dimension of the symmetric space G/K and r is the real rank of G. The proof uses a geometric gradient flow motivated by the Patterson-Sullivan theory and the barycenter map of Besson-

Courtois-Gallot. This is joint work with Chris Connell and Ben McReynolds.

Reverse Lagrangian surgeries

潘宇
天津大学

A major theme in symplectic and contact topology is the study of Legendrian knots and exact Lagrangian surfaces. In the talk, we will talk about some flexibility results of immersed Lagrangian surfaces using augmentation, a Floer type invariant of Legendrian knots. In particular, for an immersed filling of a topological knot, one can do surgery to resolve a double point with the price of increasing the surface genus by 1. In the Lagrangian analog, one can do Lagrangian surgery on immersed Lagrangian fillings to treat a double point by a genus. In this talk, we will explore the possibility of reversing the Lagrangian surgery, i.e., compressing a genus into a double point. It turns out that not all Lagrangian surgery is reversible.

Harmonic map rays and Jenkin-Serrin problem

潘会平
华南理工大学

In this talk, we will discuss several types of ray structures on the Teichmuller space, and show a transition between Teichmuller geodesics and Thurston geodesics via harmonic map (dual) rays. The key of the proof is the solution of a generalized Jenkin-Serrin problem: existence and uniqueness of some tree-valued minimal graphs over hyperbolic domains. This is a joint work with Michael Wolf.

C^0-closedness of $Symp_0(X)$

吴惟为
浙江大学

The C^0 topology of the symplectomorphism groups has lots of mysterious basic questions. The famous symplectic rigidity theorem says that, given any symplectic manifold X, the symplectomorphism group Symp(X) are closed in Diff(X) with respect the the C^0 topology. It is also easy to check that $Symp_h(X)$, the group of homologically trivial symplectomorphisms, is closed in Symp(X). The relation between $Symp_h(X)$ and $Symp_0(X)$ is more delicate.

In this talk, we will present a proof of the closedness of $Symp_0(X)$ in $Symp_h(X)$ when X is a log Calabi-Yau surface of type D, in the sense of Li-Li-Wu. For these symplectic manifolds, it was previously known that $Symp_h(X)$ is a subset of $Diff_0(X)$. Our result implies that, there is a smooth isotopy of some symplectomorphism which cannot be C^0-approximated by a path of symplectomorphisms. This is an ongoing project with Marcelo Atallah and Cheuk-Yu Mak.

Free circle actions on highly connected (2n+1)-manifolds

江怡
首都师范大学

The problem we concern in this talk is to determine which highly connected (2n+1)-manifolds admit free circle actions. I will introduce some previous work and our progress on this problem. This is a joint work with Yang Su.

Spectral gaps on thick part of moduli spaces

张皓皓
清华大学

We study spectral gaps of closed hyperbolic surfaces for large genus. We show that for any fixed $k \geq 1$, as the genus goes to infinity, the maximum of $\lambda_k - \lambda_{k-1}$ over any thick part of the moduli space of closed Riemann surfaces approaches the limit $\frac{1}{4}$. This is a joint work with Yunhui Wu.

Chern Classes of the conjugation representations and invariant polynomials

古星
西湖大学

The theory of characteristic classes of the projective unitary group $PU(n)$ is fundamental yet very mysterious as of today. We will review recent progresses on the study on this topic, and consider the Chern classes of the conjugation representation of the projective unitary group $PU(p^l)$, where p is an odd prime.

Nearly geodesic surfaces are filling

韩肖垄
上海数学与交叉学科研究院

A surface S in a manifold M is filling if S cuts M into contractible components. We prove for any closed hyperbolic 3-manifold M , there exists a K”> 0 such that every homotopy class of K-quasi-Fuchsian surfaces with 1<K ≤ K” is filling. As a corollary, the set of embedded surfaces in M satisfies a dichotomy: it consists of at most finitely many totally geodesic surfaces and surfaces with a quasi-Fuchsian constant lower bound K”. Each of these nearly geodesic surfaces separates any pair of distinct points at the sphere of infinity. Crucial tools include the rigidity results of Mozes-Shah, Ratner, and Shah. This work is inspired by a question of Wu and Xue whether random geodesics on random hyperbolic surfaces are filling.

Kauffman bracket skein module of small Seifert manifolds

史尚君
华东师范大学

We compute the Kauffman bracket skein modules (KBSM) of small Serfeit manifolds by providing presentations of them. From the presentations of small Serfeit manifolds, we show that the KBSM of $D^2(k1, k2)$, $ki \geq 1$ are infinitely generated free modules and the KBSM of $S^2(k1, k2, k3)$, $ki \geq 2$ are finitely generated.
This is joint work with Xiao Wang and Minyi Liang.

The symmetry of Heegaard splittings

陈皓
华东师范大学

The mapping class group of a Heegaard splitting for a 3-manifold is defined as the group of isotopy classes of orientation-preserving diffeomorphisms of the manifold that preserve both handlebodies of the splitting setwise. When viewed as a subgroup of the mapping class group of the Heegaard surface, this object raises fundamental questions posed by Minsky: Is it finite? Is it finitely generated? Is it finitely presented? In this talk, I will discuss recent progress on this problem and present a new approach to address these questions. The talk is based on joint work with Yanqing Zou.

A note on the existence of solutions to Hitchin's self-duality equations

王朔
中国科学技术大学

In 1987, Hitchin introduced the self-duality equations on rank-2 complex vector bundles over compact Riemann surfaces with genus greater than one as a reduction of the Yang-Mills equation and established the existence of solutions to these equations starting from a Higgs stable bundle. In this paper, we fill in some technical details in Hitchin's original proof by the following three steps. First, we reduce the existence of a solution of class L_2^1 to minimizing the energy functional within a Higgs stable orbit of the L_2^2 complex gauge group action. Second, using this transformation, we obtain a solution of class L_2^1 in this orbit. These two steps primarily follow Hitchin's original approach. Finally, using the Coulomb gauge, we construct a smooth solution by applying an L_2^2 unitary gauge transformation to the L_2^1 solution constructed previously. This last step provides additional technical details to Hitchin's original proof.

Counting Rational Curves and Standard Complex Structures on HyperKahler ALEs

吕源玖
中国科学技术大学

All hyperKahler ALE 4-manifolds with a given non-trivial finite group Γ in SU(2) at infinity are parameterized by an open dense subset of a real linear space of dimension 3rankΦ. Here, Φ denotes the root system associated with Γ via the McKay correspondence. Such manifolds are diffeomorphic to the minimal resolution of a Kleinian singularity. By using the period map of the twistor space, we specify those points in the parameter space at which the hyperKahlerian family of complex structures includes the complex structure of the minimal resolution. Furthermore, we count the rational curves lying on each hyperKahler ALE 4-manifold. For each point in the parameter space, we can assign an integer equals to the number of complex structures which contains rational curves. We show this integer function on the parameter space is lower semi-continuous. In the end, we prove that the twistor space of any hyperKahler ALE cannot be Kahlerian.

On the Kelly Monoidal Structure of Λ-sequences

范骜文
中国科学院

We review the Kelly's composition product of Λ-sequences on a symmetric monoidal category. We examine the associativity of the composition product and give the normal op lax monoidal structure on the category of Λ-sequences through monoidal localization. In addition, we construct the correspondence between operads on a general symmetric monoidal category and monoids in the category of Λ-sequences, which will generalize Kelly's and May-Zhang-Zou's correspondence theorem.

Free circle actions on certain simply connected 7−manifolds

胥夫鹏
清华大学

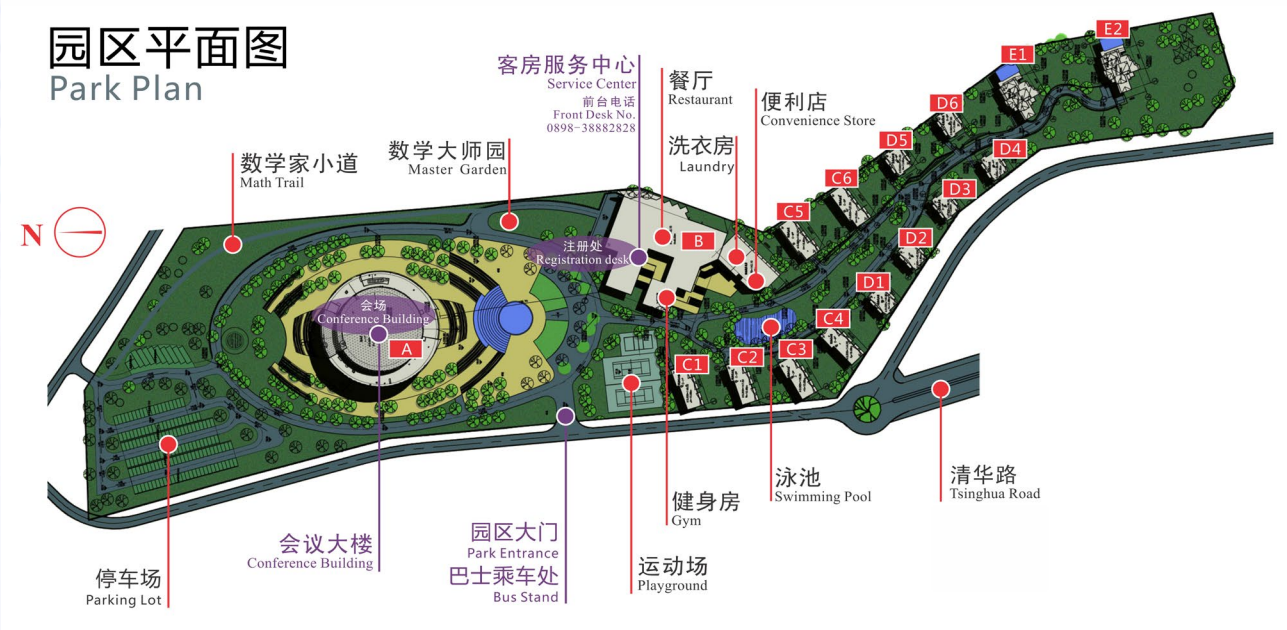
We determine for which nonnegative integers k,\ l and for which homotopy 7−sphere Σ the manifold $(kS^2 \times S^5) \# (lS^3 \times S^4) \#\Sigma$ admits a free smooth circle action.

Welcome to TSIMF

The facilities of TSIMF are built on a 23-acre land surrounded by pristine environment at Phoenix Hill of Phoenix Township. The total square footage of all the facilities is over 29,000 square meter that includes state-of-the-art conference facilities (over 10,000 square meter) to hold many international workshops simultaneously, two reading rooms of library, a guest house (over 10,000 square meter) and the associated catering facilities, a large swimming pool, gym and sports court and other recreational facilities.

Management Center of Tsinghua Sanya International Forum is responsible for the construction, operation, management and service of TSIMF. The mission of TSIMF is to become a base for scientific innovations, and for nurturing of innovative human resource; through the interaction between leading mathematicians and core research groups in pure mathematics, applied mathematics, statistics, theoretical physics, applied physics, theoretical biology and other relating disciplines, TSIMF will provide a platform for exploring new directions, developing new methods, nurturing mathematical talents, and working to raise the level of mathematical research in China.

About Facilities



Registration

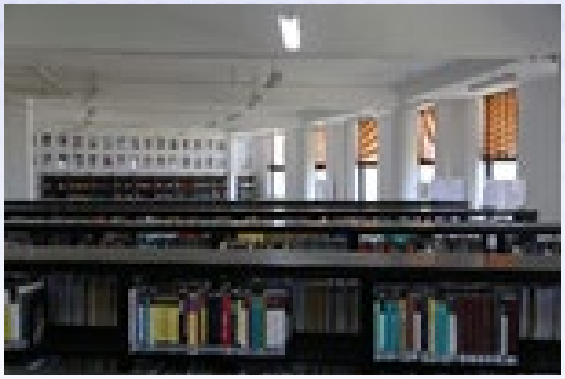
Conference booklets, room keys and name badges for all participants will be distributed at the front desk. Please take good care of your name badge. It is also your meal card and entrance ticket for all events.

Guest Room

All the rooms are equipped with: free Wi-Fi (Password:tsimf123), TV, air conditioning and other utilities.

Family rooms are also equipped with kitchen and refrigerator.

Library



Opening Hours: 09:00am-22:00pm

TSIMF library is available during the conference and can be accessed by using your room card. There is no need to sign out books but we ask that you kindly return any borrowed books to the book cart in library before your departure.

In order to give readers a better understanding of the contributions made by the Fields Medalists, the library of Tsinghua Sanya International Mathematics Forum (TSIMF) instituted the Special Collection of Fields Medalists as permanent collection of the library to serve the mathematical researchers and readers.

So far, there are 271 books from 49 authors in the Special Collection of Fields Medalists of TSIMF library. They are on display in room A220. The participants are welcome to visit.

Restaurant

All the meals are provided in the restaurant (Building B1) according to the time schedule.

Breakfast 07:30-08:30
Lunch 12:00-13:30
Dinner 17:30-19:00

Laundry

Opening Hours: 24 hours
The self-service laundry room is located in the Building(B1).

Gym

Opening Hours: 24 hours
The gym is located in the Building 1 (B1), opposite to the reception hall. The gym provides various fitness equipment, as well as pool tables, tennis tables etc.

Playground

Playground is located on the east of the central gate. There you can play basketball, tennis and badminton. Meanwhile, you can borrow table tennis, basketball, tennis balls and badminton at the reception desk.

Swimming Pool

Please enter the pool during the open hours, swimming attire and swim caps are required, if you feel unwell while swimming, please stop swimming immediately and get out of the pool. The depth of the pool is 1.2M-1.8M.
Opening Hours: 13:00-14:00 18:00-21:00

Free Shuttle Bus Service at TSIMF

We provide free shuttle bus for participants and you are always welcome to take our shuttle bus, all you need to do is wave your hands to stop the bus.

Destinations: Conference Building, Reception Room, Restaurant, Swimming Pool, Hotel etc.

Contact Information of Administration Staff

Location of Conference Affairs Office: Room 104, Building A
Tel: 0086-898-38263896
Conference Affairs Manager: Shouxi He 何守喜
Tel:0086-186-8980-2225
Email: heshouxi@tsinghua.edu.cn

Location of Accommodation Affairs Office: Room 200, Building B1
Tel: 0086-898-38882828
Accommodation Manager: Ms. Li YE 叶莉
Tel: 0086-139-7679-8300
Email: yel@tsinghua.edu.cn

IT
Yuanhang Zhou 周远航
Tel: 0086-133-6898-0169
Email: 13368980169@163.com

*Reception duty hours: 7:00-23:00, chamber service please call: 0086-38882828 (exterior line) 80000 (internal line)
*Room maintainer night duty hours: 23:00-7:00, if you need maintenance services, please call: 0086-38263909 (exterior line) 30162 (internal line)

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