



Operator Algebra and Harmonic Analysis

算子代数和调和分析2019年研讨会

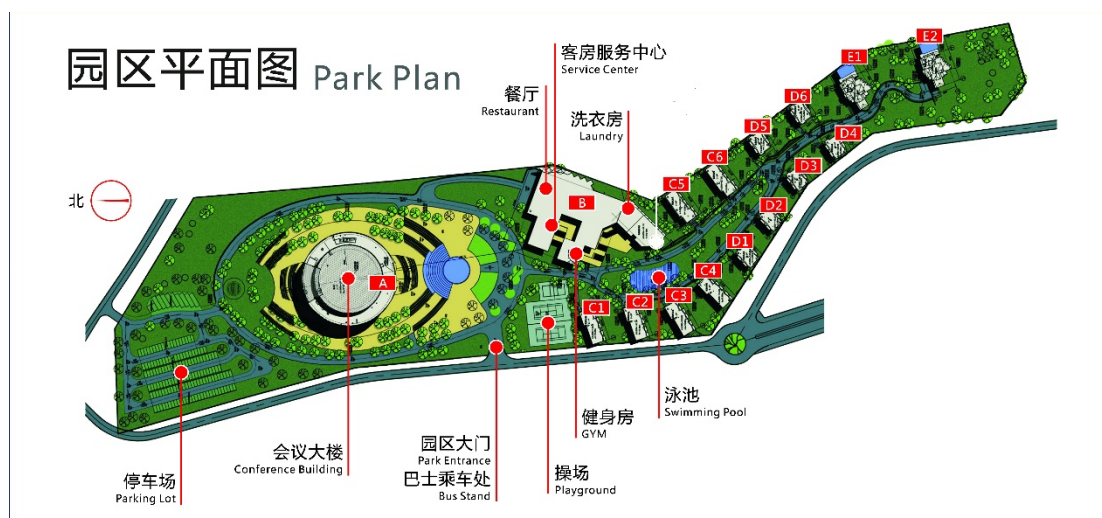
December 9-13, 2019

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 libraries, 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.

Mathematical Sciences Center (MSC) of Tsinghua University, assisted by TSIMF's International Advisory Committee and Scientific Committee, will take charge of the academic and administrative operation 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 Registry. Please take good care of your name badge. It is also your meal card and entrance ticket for all events.



Guest Room



Conference Center can receive about 378 people having both single and double rooms, and 42 family rooms.

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

Family rooms are also equipped with kitchen and refrigerator.



Library



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

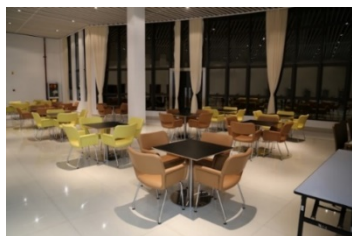
TSIMF library is available during the conference and can be accessed by using your room card. There is no need to sign out books but we ask that you kindly return any borrowed books to the book cart in library before your departure.



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 210 books from 43 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 Chinese 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 1 (B1).

Gym

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 and 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 note that there are no lifeguards. We will not be responsible for any accidents or injuries. In case of any injury or any other emergency, please call the reception hall at +86-898-38882828.



Outside Shuttle Service

We have shuttle bus to take participants to the airport for your departure service. Also, we would provide transportation at the Haihong Square (海虹广场) of Howard Johnson for the participants who will stay outside TSIMF. If you have any questions about transportation arrangement, please feel free to contact the staff at venue.

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.



Workshop on Operator Algebra and Harmonic Analysis 2019, Dec. 9 to 13, 2019

Time&Date	Monday (Dec. 9)	Tuesday (Dec. 10)	Wednesday (Dec. 11)	Thursday (Dec. 12)	Friday (Dec. 13)
7:30-8:30	<i>Breakfast (60 minutes)</i>				
<i>Chair</i>	Chi-Keung Ng	Bingren Li	Michael Cowling	Ngai-Ching Wong	
8:30-9:10	Opening: Bingren Li / Zhong-Jin Ruan	Anthony T-o-Ming Lau	Ali Ulger	Volker Runde	Free Discussion
9:20-10:00	Michael Cowling	Jinchuan Hou	Nico Spronk	Rui Liu	Free Discussion
10:00-10:30	<i>Coffee Break</i>				
<i>Chair</i>	Zhong-Jin Ruan	Lei Li	Anthony T-o-Ming Lau	Ali Ulger	
10:30-11:10	Losert Viktor	Xiang Fang	Cho-Ho Chu	Lei Li	Free Discussion
11:20-12:00	Yong Zhang	Group Photo after the talk	Li Guang Wang	Ngai-Ching Wong	Free Discussion
12:00-13:30	<i>Lunch (90 minutes)</i>				
<i>Chair</i>	Nico Spronk	Cho-Ho Chu	Volker Runde		
14:00-14:40	Yi Wang	Chi-Keung Ng	Qin Wang		
14:50-15:30	Wei Sun	Hao-Wei Huang	Ya-Shu Wang		
15:30-16:00	<i>Coffee Break</i>				
<i>Chair</i>	Jinchuan Hou	Mahya Ghandehari	Losert Viktor	Free Discussion 13:30-17:00	
16:00-16:40	Huichi Huang	Zhiqiang Li	Mahya Ghandehari		
18:00-19:30	<i>Dinner</i>	<i>Dinner</i>	<i>Banquet 18:00-20:00</i>	<i>Dinner</i>	<i>Departure</i>

OPERATOR ALGEBRA AND HARMONIC ANALYSIS 2019
算子代数与调和分析研讨会 2019

TSINGHUA SANYA INTERNATIONAL MATHEMATICS FORUM (TSIMF)
SANYA, HAINAN, CHINA
DECEMBER 9 TO 13, 2019.

as of November 25, 2019

Monday, December 9, 2019

(Chair: Chi-Keung Ng 吴志强)

8:30 – 9:10 Opening

Bingren Li 李炳仁 (Chinese Academy Of Sciences, China)

Zhong-Jin Ruan 阮忠进 (University of Illinois at Urbana Champaign, USA)

9:20 – 10:00 Michael Cowling (University of New South Wales, Australia)

Matrix coefficients of unitary representations of semisimple groups.

TEA/COFFEE/SNACKS

(Chair: Zhong-Jin Ruan 阮忠进)

10:30 – 11:10 Losert Viktor (University of Vienna, Austria)

On some classes of module homomorphisms.

10:20 – 12:00 Yong Zhang 张勇 (University of Manitoba, Canada)

Amenability of weighted group algebras.

Lunch (12:00 – 13:30)

(Chair: Nico Spronk)

14:00 – 14:40 Yi Wang 王奕 (State University of New York at Buffalo, USA)

A unified approach to the Arveson-Douglas Conjecture and the asymptotic stable division property.

14:50 – 15:30 Wei Sun 孙伟 (East China Normal University, China)

A perspective of free group actions from C^ -algebras.*

TEA/COFFEE/SNACKS

(Chair: Jinchuan Hou 侯晋川)

16:00 – 16:40 Huichi Huang 黄辉斥 (Chongqing University, China)

Fourier coefficients of $\times p$ -invariant measures.

Dinner (18:00 – 19:30)

Tuesday, December 10, 2019

(Chair: Bingren Li 李炳仁)

8:30 – 9:10 Anthony To-Ming Lau 刘道明 (University of Alberta, Canada)
Characterizations of Fourier algebra of locally compact groups in a class of Banach algebra.

9:20 – 10:00 Jinchuan Hou 侯晋川 (Tiayuan Polytechnic University, China)
Quantum correlation based on Uhlmann Fidelity for Gaussian states.

TEA/COFFEE/SNACKS

(Chair: Lei Li 李磊)

10:30 – 11:10 Xiang Fang 方向 (National Central University, Taiwan)
Regularity of Random Analytic Functions.

Group Photo taken at the entrance of the conference building

Lunch (12:00 – 13:30)

(Chair: Cho-Ho Chu 朱础豪)

14:00 – 14:40 Chi-Keung Ng 吴志强 (Nankai University, China)
Analytic bundle structure on the idempotent manifold.

14:50 – 15:30 Hao-Wei Huang 黄皓玮 (National Sun Yat-sen University, Taiwan)
Limit theorems and wrapping transformations in bi-free probability theory.

TEA/COFFEE/SNACKS

(Chair: Mahya Ghandehari)

16:00 – 16:40 Zhiqiang Li 李智强 (Chongqing University, China)
A survey of Krein-Milman type theorems for C^ -algebras.*

Dinner (18:00 – 19:30)

Wednesday, December 11, 2019

(Chair: Michael Cowling)

8:30 – 9:10 Ali Ulger (University of Koc, Turkey)
BSE-ALGEBRAS: The State of the Art.

9:20 – 10:00 Nico Spronk (University of Waterloo, Canada)
Eberlein-de Leeuw-Glicksberg decompositions of Fourier-Stieltjes algebras.

TEA/COFFEE/SNACKS

(Chair: Anthony To-Ming Lau 刘道明)

10:30 – 11:10 Cho-Ho Chu 朱础豪 (Queen Mary University London, UK)
When can we squeeze a C^ -algebra unit ball in a Hilbert ball?*

10:20 – 12:00 Li Guang Wang 王利广 (Qufu Normal University, China)
On perturbation of W^ -TROs.*

Lunch (12:00 – 13:30)

(Chair: Volker Runde)

14:00 – 14:40 Qin Wang 王勤 (East China Normal University, China)
Approximation problems and spectral invariant subalgebras in ℓ^p uniform Roe algebras of discrete groups.

14:50 – 15:30 Ya-Shu Wang 王雅书 (Nation Chung Hsing University, Taiwan)
How $P_1(G)$ determines a finite group G .

TEA/COFFEE/SNACKS

(Chair: Losert Viktor)

16:00 – 16:40 Mahya Ghandehari (University of Delaware, USA)
Spectra of weighted Fourier Algebras.

Dinner (18:00 – 19:30)

Thursday, December 12, 2019

(Chair: Ngai-Ching Wong 黄毅青)

8:30 – 9:10 Volker Runde (University Alberta, Canada)
What is an ultrapower of an operator space?

9:20 – 10:00 Rui Liu 刘锐 (Nankai University, China)
A toolkit for constructing dilations of operator-valued measures, bounded linear maps and frames.

TEA/COFFEE/SNACKS

(Chair: Ali Ulger)

10:30 – 11:10 Lei Li 李磊 (Nankai University, China)
Uniform Kadec-Klee property in JB^ -triples.*

10:20 – 12:00 Ngai-Ching Wong 黄毅青 (National Sun Yat-sen University, Taiwan)
Disjointness preservers of operator algebras and related objects.

Closing Remarks

Lunch (12:00 – 13:30)

Free Discussion (13:30 – 17:00)

Dinner (18:00 – 19:30)

Friday, December 13, 2019

Free Discussion

Departure

Titles and Abstracts

1. **Cho-Ho Chu 朱础豪**, Queen Mary University London, UK

Title: When can we squeeze a C^* -algebra unit ball in a Hilbert ball?

Abstract: We give a complete answer to the question in the title.

2. **Michael Cowling**, University of New South Wales, Australia

Title: Matrix coefficients of unitary representations of semisimple groups.

Abstract: Irreducible representations of semisimple Lie groups have matrix coefficients that decay at infinity. A recent paper of Samei and Wiersma shows that if such a representation π of G has one matrix coefficient that lies in $L^{p+\epsilon}(G)$, then all coefficients have the same property. In groups such as $\mathrm{SL}(3, \mathbb{R})$, more precise information on some matrix coefficients is often available, and they may decay more rapidly in some directions than others. This is an account of some ways in which their work might be extended to deal with this more precise information.

3. **Xiang Fang 方向**, National Central University, Taiwan

Title: Regularity of Random Analytic Functions.

Abstract: A classical result of Littlewood in 1930 considers the regularity improvement when we put random signs before a power series $f(z) = a_0 + a_1z + \cdots + a_nz^n + \cdots$, that is, we consider

$$(Rf) = \pm a_0 \pm a_1z \pm \cdots \pm a_nz^n \pm \cdots .$$

The Littlewood theorems states that if $\sum_{n=0}^{\infty} |a_n|^2 < \infty$, then Rf is almost surely in any Hardy space $H^p(D)$ for all $p < \infty$; if $\sum_{n=0}^{\infty} |a_n|^2 = \infty$, then Rf is not in any Hardy space over the unit disk. We will prove a Bergman space version of Littlewood's theorem, as well as some ramifications.

4. **Mahya Ghandehari**, University of Delaware, USA

Title: Spectra of weighted Fourier Algebras.

Abstract: Weighted Fourier algebras, *a.k.a.* Beurling-Fourier algebras, are analogues of the Beurling algebra in the non-commutative setting. These Banach algebras for general locally compact groups were defined by Lee and Samei as the predual of certain weighted von Neumann algebras, where a weight on \widehat{G} is defined to be a suitable unbounded operator affiliated with the group von Neumann algebra. In this talk, we present the general definition of a Beurling-Fourier algebra, and discuss how their spectra can be identified. In particular, we determine the Gelfand spectrum of Beurling-Fourier algebras for some representative examples of compact Lie groups, such as $\mathrm{SU}(n)$, representing spectra in terms of the complexification of the underlying Lie groups. This talk is based on joint work with Lee, Ludwig, Spronk, and Turowska.

5. **Jinchuan Hou 侯晋川**, Tiayuan Polytechnic University, China

Title: Quantum correlation based on Uhlmann Fidelity for Gaussian states.

Abstract: A quantum correlation $N_F^{\mathcal{G}, A}$ for $(n + m)$ -mode continuous-variable systems is introduced in terms of local Gaussian unitary operations performed on subsystem A based on Uhlmann

fidelity F . This quantity is a remedy for the local ancilla problem associated with the geometric measurement-induced correlations; is local Gaussian unitary invariant; is non-increasing under any Gaussian quantum channel performed on subsystem B and is an entanglement monotone when restricted to pure Gaussian states in the $(1 + m)$ -mode case. A concrete formula for $(1 + 1)$ -mode symmetric squeezed thermal states (SSTs) is presented. We also compare $N_F^{G,A}$ with other quantum correlations in scale, such as Gaussian quantum discord and Gaussian geometric discord, for two-mode SSTs, which reveals that $N_F^{G,A}$ has some advantage in detecting quantum correlations of Gaussian states.

6. **Hao-Wei Huang 黄皓玮**, Department of Applied Mathematics, National Sun Yat-sen University, Taiwan

Title: Limit theorems and wrapping transformations in bi-free probability theory.

Abstract: In classical probability, Lévy and Khintchine demonstrated that the limit law associated with any triangular array of infinitesimal random variables is infinitely divisible. In this talk, we shall manifest the analogous results for distributions on the plane and bi-torus in the framework of bi-free probability theory. Like the classical situation, bi-freely additive and multiplicative infinitely divisible distributions, and solely these distributions serve as the limiting distributions of a triangular array of infinitesimal random variables. The bi-free harmonic analysis developed by ourselves performs an essential role in the study of bi-free limit theorems. These limit theorem consequences also establish tight bonds between classical and bi-free probability theories. If time permits, some other relevant topics will be discussed.

7. **Huichi Huang 黄辉斥**, Chongqing University, China

Title: Fourier coefficients of $\times p$ -invariant measures.

Abstract: We give a characterization of ergodic $\times p$ -invariant measures on the unit circle via Fourier coefficients. Using this, we construct “small” semigroups of endomorphisms on the unit circle such that the Lebesgue measure is the only non-atomic ergodic invariant measure.

8. **Anthony To-Ming Lau 刘道明**, University of Alberta, Canada

Title: Characterizations of Fourier algebra of locally compact groups in a class of Banach algebra.

Abstract: An F -algebra is a Banach algebra which is the unique predual of a C^* -algebra M and the identity of M is a multiplicative linear functional on A . In this talk, I will give various characterizations of the Fourier algebra of a locally compact group in terms of F -algebras based my recent joint work with Hung Le Pham.

9. **Lei Li 李磊**, Nankai University, China

Title: Uniform Kadec-Klee property in JB^* -triples.

Abstract: I will talk about the $M(r, s)$ and $M^*(r, s)$ properties for Banach spaces and then establish sufficient conditions, in terms of the (r, s) -Lipschitz weak* Kadec-Klee property, to guarantee that its dual space satisfies the UKK*-property. These results are applied to prove that every spin factor satisfies the UKK property, and then the KKP and UKK property are equivalent for real and complex JB^* -triples. This is joint work with E. Nieto and A. M. Peralta.

10. **Rui Liu 刘锐**, Nankai University, China

Title: A toolkit for constructing dilations of operator-valued measures, bounded linear maps and frames.

Abstract: In our AMS Memoir, we give a general dilation theory of operator-valued measures (OVMs) and bounded linear maps, motivated by the observation that there is a connection between the analysis of dual pairs of frames (both the discrete and the continuous cases) and the dilation theory of OVMs. These led to many natural questions concerning special types of dilations. In particular, it is not known whether ultraweakly-wot continuous maps can be dilated to ultraweakly-wot continuous homomorphisms. We answer this question affirmatively for the case when the domain algebra is an abelian vN-algebra. We also prove that any OVM with projective isometric group action (i.e. Imprimitivity System) can be dilated to a (but usually non-Hilbertian) projection-valued measure preserving the same structure. Recently, we extend the above dilation results from commutative cases to non-commutative quantum measures (OVMs on vN-algebra projection lattices), and obtain the Jordan-homomorphism dilation theorem.

11. **Zhiqiang Li 李智强**, College of Mathematics and Statistics, Chongqing University, China

Title: A survey of Krein-Milman type theorems for C^* -algebras.

Abstract: In this talk, we give a survey of Krein-Milman type results in the category of C^* -algebras, which were initiated by the classification of C^* -algebras, and are developed also on its own.

12. **Chi-Keung Ng 吴志强**, Nankai University, China

Title: Analytic bundle structure on the idempotent manifold.

Abstract: Let X be a (real or complex) Banach space, and $\mathcal{I}(X)$ be the set of all idempotents in $\mathcal{L}(X)$. We show that the Banach submanifold $\mathcal{I}(X)$ of $\mathcal{L}(X)$ is a locally trivial (respectively, real or complex) *analytic* field of affine-Banach subspaces of $\mathcal{L}(X)$ over the Grassmann manifold $\mathcal{G}(X)$, via the map κ that sends $Q \in \mathcal{I}(X)$ to $Q(X)$. On our way, we discover that $\mathcal{I}(X)$, when equipped with the norm topology, is homeomorphic to the topological subspace

$$\{(E, F) \in \mathcal{G}(X) \times \mathcal{G}(X) : E \text{ and } F \text{ are complemented}\}$$

of the product space $\mathcal{G}(X) \times \mathcal{G}(X)$, via the assignment $Q \mapsto (\ker Q, Q(X))$.

We also show that there exists a *compatible Banach space* structure on each fiber of $\mathcal{I}(X)$ such that $\mathcal{I}(X)$ becomes a locally trivial *continuous* Banach bundle over $\mathcal{G}(X)$, but $\mathcal{I}(X)$ can never be a complex analytic Banach bundle over $\mathcal{G}(X)$ when X is a complex Banach space.

If H is a real Hilbert space, we show that $(\mathcal{I}(H), \mathcal{G}(H), \kappa)$ can be identified, as real analytic Banach bundles, with the tangent bundle of $\mathcal{G}(H)$.

This is a joint work with C.W. Leung.

13. **Wei Sun 孙伟**, East China Normal University, China

Title: A perspective of free group actions from C^* -algebras.

Abstract: Given free group actions on compact metric spaces, corresponding crossed product C^* -algebras can be constructed in the canonical way. Classical results have been achieved on the

relationship between action orbits and such C^* -algebras, especially for specific base spaces and groups, under which strong and descriptive results can be reached.

We studied the relationships for more general spaces, and showed some links between orbit behaviors and the C^* -algebras.

14. **Volker Runde**, University Alberta, Canada

Title: What is an ultrapower of an operator space?

Abstract: If E is an operator space and \mathcal{U} is an ultrafilter over some index set, then the ultrapower $(E)_{\mathcal{U}}$ of E in the category of operator spaces is defined to be the Banach space ultrapower of E at each matrix level. This may obscure some essential aspects of non-commutativity. In this talk, I will discuss an alternative definition that replaces, for some index set I , the space $\ell^\infty(I, E)$ by $M_I(E)$.

15. **Nico Spronk**, University of Waterloo, Canada

Title: Eberlein-de Leeuw-Glicksberg decompositions of Fourier-Stieltjes algebras.

Abstract: An EdLG decomposition is a certain type of decomposition of a Fourier-Stieltjes algebra into two translation-invariant subspaces, one a subalgebra and the other an ideal. The main example is the decomposition in the matrix coefficients of finite-dimensional representations, and of pure-infinite representations. I wish to illustrate applications of these ideas to questions of operator amenability and homomorphism

16. **Ali Ulger**, University of Koc, Turkey

Title: BSE-ALGEBRAS: The State of the Art.

Abstract: Let G be an abelian locally compact group. The classical **Bochner-Schoenberg-Eberlin** Theorem states this:

BSE-Theorem. Let $f : \widehat{G} \rightarrow \mathbb{C}$ be a continuous bounded function. For to exist a complex valued measure $\mu \in M(G)$ such that $\widehat{\mu} = f$ on \widehat{G} it is both necessary and sufficient that there exists a constant $\beta > 0$ such that, for all $\gamma_1, \dots, \gamma_n$ in \widehat{G} and c_1, \dots, c_n in \mathbb{C} , the inequality

$$\left| \sum_{k=1}^n c_k f(\gamma_k) \right| \leq \beta \cdot \left\| \sum_{k=1}^n c_k \gamma_k \right\|_{L^\infty(G)}$$

holds. In this case, the best constant β satisfying the above condition is $\|\mu\|$.

Takahasi and Hatori, abstracting this theorem of Bochner-Schoenberg-Eberlin, have introduced in (PAMS, 110 (1990)) the notions of BSE-functions and BSE-algebras. This subject has become now an important chapter of harmonic analysis and Banach algebras. In this talk I will present an up to date account of this subject, comprising the important known results together a series of new results.

Some of the new results are taken from joint works with G. Dales.

17. **Losert Viktor**, Faculty of Mathematics, University of Vienna, A1090 Vienna, Austria
Title: On some classes of module homomorphisms. Automatic complete boundedness and a representation theorem.
Abstract: We extend results of Smith. This type of homomorphisms occurs in the description of multipliers of the Fourier algebra of $SL(2, R)$.
18. **Li Guang Wang 王利广**, Qufu Normal University, China
Title: On perturbation of W^* -TROs.
Abstract: In this short note, we show that when $d_{cb}(V, W)$ between two W^* -TROs V and W is small, the distance between their linking von Neumann algebras $R(V)$ and $R(W)$ is also small. We also consider the conditions under which a von Neumann algebra can be the linking von Neumann algebra of a W^* -TRO. New Characterizations of nuclear TROs are given.
19. **Qin Wang 王勤**, East China Normal University, China
Title: Approximation problems and spectral invariant subalgebras in ℓ^p uniform Roe algebras of discrete groups.
Abstract: Uniform Roe algebras are C^* -algebras on discrete groups or discrete metric spaces which reflect large scale geometry of the underlying spaces. Recently, ℓ^p version of uniform Roe algebras for $1 \leq p < \infty$ have attracted much attention due to their applications in operator theory, operator algebras and K -theory. In this talk, we will investigate several approximation problems in ℓ^p uniform Roe algebras. We determine a large class of dense subspaces of ℓ^p uniform Roe algebras of discrete groups whose elements can be approximated in operator norm by their band truncations. Under an ℓ^p version of Rapid Decay condition, we construct a spectral invariant subalgebra of the ℓ^p uniform Roe algebra of a discrete group. We also establish that the K -theory groups of these ℓ^p operator algebras on discrete metric spaces with Yu's property (A) depend continuously on p .
20. **Yi Wang 王奕**, State University of New York at Buffalo, USA
Title: A unified approach to the Arveson-Douglas Conjecture and the asymptotic stable division property.
Abstract: The Arveson-Douglas Conjecture says that invariant spaces of certain analytic function spaces, arising from polynomial ideals, are essentially normal as Hilbert modules. Positive results on the Arveson-Douglas Conjecture will lead to a realization of the fundamental class in K_1 group of the corresponding zero variety. The asymptotic stable division property of a polynomial ideal (or a submodule) states that any functions in the ideal have a decomposition with certain norm controls. Based on a key inequality, we showed that the stable division property implies essential normality.
21. **Ya-Shu Wang 王雅书**, Nation Chung Hsing University, Taiwan
Title: How $P_1(G)$ determines a finite group G .
Abstract: Let G be a finite group and let $P_1(G)$ denote the set of all norm one positive definite functions on G . That is,

$$P_1(G) = \{ \langle \pi(\cdot)\xi, \xi \rangle \mid \pi : G \rightarrow \mathcal{U}(H) \text{ unitary representation, } \xi \in H, \|\xi\| = 1 \}.$$

In this talk, I will present that $P_1(G)$ determines G in many situations. We can tell if G is abelian, cyclic, simple, perfect, solvable, supersolvable, or nilpotent via $P_1(G)$. Especially when G is abelian, we can determine $G \cong \prod_j Z_{p_j^{r_j}}$ as a direct product of its cyclic subgroups of prime power orders.

22. **Ngai-Ching Wong 黄毅青**, National Sun Yat-sen University, Taiwan

Title: Disjointness preservers of operator algebras and related objects.

Abstract: Recall that a W^* -algebra M is a C^* -algebra with a predual. So M carries many different structures, including the geometric (i.e., norm) structure, the $*$ -algebraic structure, and the normal structure (i.e., weak* topology). As the norm of an element a in M is equal to the square root of the spectral radius of a^*a , the geometric structure of M can be recovered from its $*$ -algebraic structure. It is further showed by Gardner that two W^* -algebras are $*$ -algebraic isomorphic if they are algebraic isomorphic, and all algebraic isomorphisms between W^* -algebras are norm and σ -weakly bi-continuous. Indeed, every algebra isomorphism $\theta : M \rightarrow N$ between W^* -algebras carries the form $\theta(a) = \pi(hah^{-1})$ for some invertible positive element h in M and some $*$ -isomorphism π from M onto N . Therefore, W^* -algebras are completely determined by their linear and product structures.

In this talk, we show that only the linear and zero product, or more generally, the linear disjointness structure also suffice to determine W^* -algebras, and indeed AW^* -algebras. We will also discuss how the linear disjointness structure determines general C^* -algebras, Hilbert C^* -modules, Fourier algebras, and holomorphic functions of C^* -algebras.

23. **Yong Zhang 张勇**, Department of Mathematics, University of Manitoba, Winnipeg R3T 2N2, Canada

Title: Amenability of weighted group algebras.

Abstract: We provide a new proof to a characterization of amenability for weighted group algebras, fixing a gap in the earlier paper “Generalised Notions of Amenability, II” (J. Funct. Anal. 254 (2008) 1776-1810). The result answers a question raised by M. C. White (Bull. London. Math. Soc. 23 (1991) 375380). This is joint work with F. Ghahramani and R. J. Loy.

English Name	Chinese Name	Employer's Name in English	邮箱	Arrival Time	Arrival flight/Train No.	Departure Time	Departure flight/Train No.
Qing Meng	孟庆	Qufu Normal University	mengqing80@163.com	2019/12/8 13:00	SC8861	2019-12-13 11:40	SC4752
Xiao Chen	陈潇	Shandong University at Weihai	chenxiao@sdu.edu.cn	Dec. 8th/p.m.10:50	3U8150	Dec. 13th/a.m.8:00	3U8149
Jiang, Baojie	蒋报捷	Chongqing University	jiangbaojie@gmail.com	2019. 12. 08/22 : 50 (pm)	3U8150	19. 12. 14/12 : 50 (pm)	3U8716
Jinchuan Hou	侯晋川	Tiayuan Polytechnic University	houjinchuan@tyut.edu.cn	Dec. 08, 14:35	3U8541	Dec. 13, 11:35	MU2532
Anthony To-Ming Lau	劉道明	University of Alberta	anthonyt@ualberta.ca	2019/12/8 0:00		Fri Dec 13/ 11:55 AM	AirChina 1354
Chi-Keung Ng	吳志強	Nankai University	ckng@nankai.edu.cn	8th Dec. 17:10	JD 5196	12th Dec., 15:45	BK 2730
Lei Li	李磊	Nankai University	leilee@nankai.edu.cn	8th Dec. 17:10	JD5196	Dec. 13, 10:00,	CZ6350
Nico Spronk		University of Waterloo	nspronk@uwaterloo.ca	8 Dec. 2019/13:45/	CA1803	13 Dec. 2019/11:55/	CA1354
Xiang Fang	方向	Central Univ. Taiwan	xfang@math.ncu.edu.tw	Dec 08, 2019/ 09:40am	CI525	Dec 12, 10:40am	CI 526
Volker Runde		University of Alberta	vrunde@ualberta.ca	Dec 8, 11:00 am	CZ 360	Dec 14, 9:35 am,	CZ 6747
Ngai-Ching Wong	黃毅青	National Sun Yat-sen University	wong@math.nsysu.edu.tw	2019/12/10 凌晨 00:40:00 AM	CZ6782	2019/12/13 10:05	CZ6350
Zhong-Jin Ruan	阮忠进	University of Illinois at Urbana-Champaign	z-ruan@illinois.edu	12月9日 00:40	CZ6782	Dec 12, 2019 afternoon	
Losert Viktor		University of Vienna	viktor.losert@univie.ac.at	2019/12/8 17:15	CZ6987	2019/12/13 23:00	CZ6749
Yi Wang	王奕	State University of New York at Buffalo	yiwangfdu@gmail.com	12/08/2019 20:05	FM9237	12/13/2019 19:25	HO 1226
Gui Mei An	安桂梅	Nankai University	anqm@nankai.edu.cn	12. 9日 20:55-0:50	GS6509	12.12日 15:30	JD5195
Zhiqiang Li	李智强	College of Mathematics and Statistics, Chongqing University	zqli@cqu.edu.cn	08 Dec. 2019, 14:30	HU7078, T1.	13 Dec. 2019, 08:30	HU7077, T1.
Ya Shu Wang	王雅書	Department of Applied Mathematics, National Chung Hsing University	yashu@dragon.nchu.edu.tw	Dec. 9/12:45/	HX169	Dec. 13/13:35/	HX170
Cho-Ho Chu	朱礎豪	Queen Mary, University of London	c.chu@qmul.ac.uk	2019/12/9 10:30	KA0650	2019/12/13 11:30	KA0671
Michael Cowling		University of New South Wales	m.cowling@unsw.edu.au	2019/12/8 19:55	KA0650	2019/12/13 14:10	CZ6733
Qin Wang	王勤	East China Normal University	qwang@math.ecnu.edu.cn	Dec. 08, 2019 16:35	MU5377	Dec. 13, 2019 11:20	MU9538
Wei Sun	孙伟	East China Normal University	weyl.sun@gmail.com	Dec. 8th, 10:10,	MU9537	Dec. 12 Thursday, 17:40	MU5467
Li Guang Wang	王利广	Qufu Normal University	wanliguang0510@163.com	2019-12-8 ; 13:00	SC8861	2019-12-13 ; 11:40	SC4752
Mahya Ghandehari		Department of Math	mahya@udel.edu	Dec. 8th, 10:45 am	UA 7431	Dec. 13th, 11:55 am	UA7434
Bingren Li	李炳仁	INST. of MATH. CHINESE ACAD. Of SCEINESE	brli@math.ac.cn	Dec. 8, 17:05	ZH9155	Dec.13, 14:30	CZ6715
Hao-Wei Huang	黃皓瑋	National Sun Yat Sen Univ. Taiwan	hw Huang@math.nsysu.edu.tw				
Huichi Huang	黃輝斥	Chongqing University	huanghuichi@cqu.edu.cn	2019. 12. 08		2019. 12. 11	
Yong Zhang	張勇	University of Manitoba, Canada	yong.zhang@umanitoba.ca	Dec. 8, 21:40	CZ 3836	Dec. 13, 14:20	CZ 6623
Wen-Ming Wu	吳文明	Chongqing Normal University	wuwm@amss.ac.cn	Dec. 9, 2019		Dec. 13, 2019	
Rui Liu	刘锐	Nankai University	ruiliu@nankai.edu.cn				
Ali Ulger		Bogazici University	AULGER@ku.edu.tr	Sun 8 Dec, 11:15 am	HX0169	Dec. 13, 13:35	HX0170