

多复变与复几何 研讨会

Several complex variables and complex geometry

CONFERENCE PROGRAM

Time: 27th July (Monday) Place: Lecture Hall	
Talks (Chairman: Prof. Xiangyu Zhou/ John Erik Fornæss)	
09:00-10:00	The critical LYZ equation in Kähler geometry Prof. Jixiang Fu (Fudan University)
10:00-10:30	Break & Discussion
10:30-11:30	Equivalence between VMO functions and plurisubharmonic functions with zero Lelong numbers Prof. Jujie Wu (Sun Yat-sen University)
11:30-13:00	Lunch
Talks (Chairman: Prof. Chunhui Qiu/ Xiaomin Tang)	
15:00-16:00	Bergman kernels on non-compact manifolds and Poincare series Prof. Xiaonan Ma (Nankai University)
16:00-16:30	Break & Discussion
16:30-17:30	Non-Runge Fatou-Bieberbach domains in Stein manifolds with the density property Prof. Feng Rong (Shanghai Jiao Tong University)
17:30-19:00	Dinner

Time: 28th July (Tuesday) Place: Lecture Hall	
Talks (Chairs: Prof. Xiangyu Zhou/ Fusheng Deng/ Guokuan Shao)	
08:30–9:30	Point separation on complex manifolds and related topics Prof. Takeo Ohsawa (Nagoya University)
9:30–10:00	Break & Group photos
10:00–11:00	Capacity Stability of Complex Monge–Ampère Equations with Moving Prescribed Singularities Prof. Zhiwei Wang (Beijing Normal University)
11:00–11:10	Break & Discussion
11:10–12:10	Converse L^2 Theory and Singular Hermitian Metrics on Holomorphic Vector Bundles Prof. Zhuo Liu (Chongqing University of Technology)
12:10–13:00	Lunch
Talks (Chairs: Prof. Guangbin Ren/ Wei Wang)	
15:00–16:00	Boundary Schwarz lemma and rigidity of holomorphic mappings on some bounded domains Prof. Jianfei Wang (Huaqiao University)
16:00–16:30	Break & Discussion
16:30–17:30	Obstruction flatness and Bergman logarithmical flatness of circle bundles Prof. Hang Xu (Sun Yat-sen University)
17:30–19:00	Dinner

Time: 29th July (Wednesday) Place: Lecture Hall	
Talks (Chairs: Prof. Xiangyu Zhou/ Jinsong Liu/ Zhenhan Tu)	
08:30–9:30	Some Problems in Several Complex Variables Prof. Yum-Tong Siu (Harvard University)
9:30–10:00	Break & Discussion
10:00–11:00	Positivity of Formally Integrable Structures and Regularity of the Treves Complex Prof. Qingchun Ji (Fudan University)
11:00–11:10	Break & Discussion
11:10–12:10	Complex Hyperbolicity Is About Hard Algebra Prof. Song-Yan Xie (Academy of Mathematics and Systems Science, CAS)
12:10–13:00	Lunch
13:00–17:30	Discussion
17:30–19:00	Dinner

Time: 30th July (Thursday) Place: Lecture Hall	
Talks (Chairs: Prof. Armen Sergeev/ Chunping Zhong/ Yun Gao)	
08:30–9:30	Orbits and the Kobayashi metric Prof. John Erik Fornæss (Norwegian University of Science and Technology)
9:30–10:00	Break & Group photos
10:00–11:00	Schwarz Symmetrization of G-Invariant Plurisubharmonic Functions Prof. Liyou Zhang (Capital Normal University)
11:00–11:10	Break & Discussion
11:10–12:10	On the classification of proper holomorphic mappings between bounded symmetric domains Prof. Sui-Chung Ng (East China Normal University)
12:10–13:00	Lunch
Online Talks (Chairs: Prof. Yum-Tong Siu/ Takeo Ohsawa)	
15:00–16:00	Bando' s L^n curvature technique: solving the $\bar{\partial}$ equation on non-compact domains Prof. Mihai Păun (Universität Bayreuth)
16:00–16:30	Break & Discussion
16:30–17:30	Sharp $C^{1,\bar{1}}$ Estimates in Kähler Quantization Prof. Tamás Darvas (University of Maryland)
17:30–19:00	Dinner
19:30–21:30	Discussion Session

Time: 31th July (Friday) Place: Lecture Hall	
Talks (Chairs: Prof. Sheng Rao/ Langfeng Zhu/ Congwen Liu)	
08:30–9:30	Localization of Bergman Kernels and the Cheng–Yau Conjecture on Real Analytic Pseudoconvex Domains Prof. Xiaoshan Li (Wuhan University)
9:30–10:00	Break & Group photos
10:00–11:00	The $\bar{\partial}$ equation on subbundles Prof. Zhi Li (Beijing University of Posts and Telecommunications)
11:00–11:10	Break & Discussion
11:10–12:10	Zhou Weights, Zhou Valuations and Valuative Interpolations Prof. Zhitong Mi (Beijing Jiaotong University)
12:10–13:00	Lunch
Talks (Chairs: Prof. Yonghong Xie/ Yum-Tong Siu)	
14:30–15:30	Characterization of Hardy spaces on tube domains over polyhedral cones Prof. Qingyan Wu (Linyi University)
15:30–16:00	Break & Discussion
16:00–17:00	Theory of Topological Insulators: Quantization and BB-correspondence Prof. Armen Sergeev (Steklov Mathematical Institute)
17:00–19:00	Dinner

July 27 Monday

Time: 9:00-10:00 **Chairman:** Xiangyu Zhou

Speaker: Prof. Jixiang Fu (Fudan University)

Title: The critical LYZ equation in Kähler geometry

Abstract: In Kähler geometry, the LYZ equation, also known as the deformed Hermitian-Yang-Mills equation, is a fully nonlinear elliptic partial differential equation that originates from mirror symmetry. In this talk, we present the existence of smooth solutions to the LYZ equation at the critical phase, thereby resolving a problem posed by Collins-Jacob-Yau and Y. Li. We also show that a Nakai-Moishezon type criterion holds for the critical LYZ equation in dimension 3, which is the 2-Hessian equation. This is based on joint work with Professors Shing-Tung Yau and Dekai Zhang, and also with Dekai Zhang and Ziyi Zhang.

Time: 10:30-11:30 **Chairman:** John Erik Fornæss

Speaker: Prof. Jujie Wu (Sun Yat-sen University)

Title: Equivalence between VMO functions and plurisubharmonic functions with zero Lelong numbers

Abstract: We prove that a plurisubharmonic function on a domain in the complex Euclidean space is a locally VMO (Vanishing Mean Oscillation) function if and only if its Lelong number at each point vanishes. We also give a global version of this result when the boundary of the domain satisfies the *interior sphere condition*. An example emphasizes the importance of this condition. These equivalences contribute to a better understanding of the behavior of singular plurisubharmonic functions. We end the paper by discussing the link between the residual Monge-Ampère mass and VMO functions, by providing examples. This is joint work with Severine Biard.

Time: 15:00-16:00 **Chairman:** Chunhui Qiu

Speaker: Prof. Xiaonan Ma (Nankai University)

Title: Bergman kernels on non-compact manifolds and Poincaré series

Abstract: We begin by reviewing our result concerning the estimation of the exponential decay of the Bergman kernel associated with the powers of a positive line bundle on complete Kähler manifolds, within the framework of bounded geometry. As an application, we show that if a discrete group Γ acts on such a variety and the quotient has finite volume, then, for sufficiently large powers of the positive line bundle, the Bergman kernel on the quotient space can be expressed as the sum, over $\gamma \in \Gamma$, of the contributions of the Bergman kernel on the total space. In

particular, we highlight new examples of relative Poincaré series on domains of $\mathbb{C}^n$ and show that they do not vanish identically. This is a joint work with L. Ioos, W. Lu and G. Marinescu.

Time: 16:30-17:30 **Chairman:** Xiaomin Tang

Speaker: Feng Rong (Shanghai Jiao Tong University)

Title: Non-Runge Fatou-Bieberbach domains in Stein manifolds with the density property

Abstract: Let X be a Stein manifold with the density property. We present methods of constructing two kinds of non-Runge Fatou-Bieberbach domains in X , which by definition are proper open subsets of X biholomorphic either to $\mathbb{C}^n$ or to X . For both kinds, we provide examples where our methods apply. This is a joint work with Gaofeng Huang and Frank Kutzschebauch.

July 28 Tuesday

Time: 08:30-9:30 **Chair:** Xiangyu Zhou

Speaker: Prof. Takeo Ohsawa (Nagoya University)

Title: Point separation on complex manifolds and related topics

Abstract: As a background, examples of holomorphically nonconvex manifolds are recalled which are either the increasing union of Stein manifolds or locally Stein branched Riemann domains over $\mathbb{C}^2$. They are due to Fornaess ('76,'77,'78) and Ueda ('77).

Then, an extension theorem for holomorphic functions is formulated under the existence of a nonzero canonical form. It explains what was needed to show that there exists a locally closed complex submanifold of $\mathbb{C}^3$ which is holomorphically nonconvex but locally Stein which are of the same kind as the examples of Fornaess and Ueda.

Applications of the extension theorem to other related questions are given.

Time: 10:00-11:00 **Chair:** Fusheng Deng

Speaker: Prof. Zhiwei Wang (Beijing Normal University)

Title: Capacity Stability of Complex Monge-Ampère Equations with Moving Prescribed Singularities

Abstract: In this talk, we introduce our recent results on the study of complex Monge-Ampère equations with prescribed singularities, which can be found in arXiv:2607.12797. This is based on joint work with Kai Pang, Haoyuan Sun and Professor Xiangyu Zhou.

Time: 11:10-12:10 **Chair:** Guokuan Shao

Speaker: Prof. Zhuo Liu (Chongqing University of Technology)

Title: Converse L^2 Theory and Singular Hermitian Metrics on Holomorphic Vector Bundles

Abstract: Plurisubharmonicity and Griffiths/Nakano positivity are fundamental notions in several complex variables and complex geometry. They underlie a series of classical L^2 theorems, including Hörmander's L^2 existence theorem, the Ohsawa-Takegoshi L^2 extension theorem, and the optimal L^2 extension theorem. In recent years, a converse L^2 theory has been developed by Deng, Ning, Wang, Zhang, and Zhou, which characterizes these positivity notions via various L^2 -conditions for the $\bar{\partial}$ -operator. In particular, the optimal L^2 -estimate property is shown to be equivalent to plurisubharmonicity for C^2 -smooth functions, and analogously to Nakano positivity for C^2 -smooth Hermitian metrics. This characterization naturally defines Nakano positivity for singular Hermitian metrics and answers a question of Lempert.

In this talk, we will briefly review both the classical and converse L^2 theories, and then present our recent work on singular Hermitian metrics on holomorphic vector bundles, including Skoda-type division, Ohsawa-Takegoshi-type extension, Guan-Zhou-type strong openness, and Le Potier-type isomorphism. This is based

on joint works with Xujun Zhang; with Bo Xiao, Hui Yang, and Xiangyu Zhou; and with Yaxiong Liu, Hui Yang, and Xiangyu Zhou.

Time: 15:00-16:00 **Chair:** Guangbin Ren

Speaker: Prof. Jianfei Wang (Huaqiao University)

Title: Boundary Schwarz lemma and rigidity of holomorphic mappings on some bounded domains

Abstract: This talk is devoted to study the boundary Schwarz lemma and the Burns-Krantz rigidity on some bounded domains. The first is to establish the boundary Schwarz lemma for holomorphic mappings on bounded convex circular domains. The second is to give the Burns-Krantz rigidity for holomorphic mappings between nonequidimensional p -unit balls. This is joint work with Prof. Taishun Liu and Xiaomin Tang.

Time: 16:30-17:30 **Chair:** Wei Wang

Speaker: Prof. Hang Xu (Sun Yat-sen University)

Title: Obstruction flatness and Bergman logarithmical flatness of circle bundles

Abstract: Let $\Omega \subset \mathbb{C}^n$ be a smoothly bounded strictly pseudoconvex domain. The boundary $\partial\Omega$ is said to be obstruction flat if the log singularity (the obstruction function) of the Cheng–Yau log-potential of the complete Kähler–Einstein metric on Ω vanishes. It is called Bergman logarithmically flat if the log singularity in the Fefferman expansion of the Bergman kernel vanishes. In this talk, we focus on a special case that the boundary hypersurface is the circle bundle over a complex manifold, and discuss some sufficient conditions under which such a hypersurface is obstruction flat or Bergman logarithmically flat. The talk is based on joint work with P. Ebenfelt and M. Xiao.

July 29 Wednesday

Time: 08:30-9:30 **Chair:** Xiangyu Zhou

Speaker: Prof. Yum-Tong Siu (Harvard University)

Title: Some Problems in Several Complex Variables

Abstract: Will discuss the following three problems in several complex variables.

(1) Finite generation problem to determine the contexts for the finite generation of the canonical ring.

(2) Global non-deformability problem for compact Hermitian symmetric manifolds without assuming deformation to be Kähler.

(3) Differential relations derived from failure of certain properties. For example, differential relations satisfied by Kohn's subelliptic multipliers and Donaldson's holomorphicity of destabilizing subsheaves for nonexistence of Hermitian-Einstein metric for vector bundles.

Time: 10:00-11:00 **Chair:** Jinsong Liu

Speaker: Prof. Qingchun Ji (Fudan University)

Title: Positivity of Formally Integrable Structures and Regularity of the Treves Complex

Abstract: In 1982, F. Treves introduced a differential complex associated with formally integrable structures, which we call the Treves complex. It has since become a fundamental object in the study of formally integrable structures, and the exactness of this differential complex stands as the most widely concerned problem in this field. To date, complete results on its exactness have only been established in the following cases: (1) The case of non-degenerate Levi form, (2) The case of elliptic structures, (3) The case of corank 1. In this talk, I will present our results for the Levi-flat case. Our strategy is to explore the geometric characterization of global exactness, and then investigate exactness through the local realization of geometric conditions. This follows up on the talk I gave at the Tianyuan Mathematical Center last summer.

Time: 11:10-12:10 **Chair:** Zhenhan Tu

Speaker: Prof. Song-Yan Xie (Academy of Mathematics and Systems Science, CAS)

Title: Complex Hyperbolicity Is About Hard Algebra

Abstract: Entire curves can be astonishingly wild. Recent work with Yunling Chen and John Erik Fornæss shows that, under a Runge-type approximation property, a single entire curve can generate all Ahlfors currents on a compact complex manifold. This flexibility explains why complex hyperbolicity is so difficult: one needs global algebraic constraints capable of controlling every entire curve.

I will discuss several developments from the past year illustrating this principle. A central result is a Second Main Theorem for three generic conics in $\mathbb{P}^2$, obtained using invariant logarithmic 2-jet differentials rather than the classical Wronskian

method. Its key ingredient is an a priori bound on the exponents and denominators appearing in a jet differential, which reduces an infinite-looking problem to exact finite-dimensional linear algebra.

This method yields new effective hyperbolicity bounds: every very generic surface of degree at least 16 in $\mathbb{P}^3$ is Kobayashi hyperbolic, while the complement of a generic plane curve of degree at least 12 in $\mathbb{P}^2$ is hyperbolic. I will also explain how the same algebraic viewpoint answers a question of Noguchi. I will conclude with ongoing work on computing jet differentials and constructing explicit low-degree hyperbolic hypersurfaces.

July 30 Thursday

Time: 08:30-9:30 **Chair:** Armen Sergeev

Speaker: Prof. John Erik Fornæss (Norwegian University of Science and Technology)

Title: Orbits and the Kobayashi metric

Abstract: Fatou components basically never have smooth boundary. This makes it difficult to estimate the boundary behaviour of invariant metrics. We consider the problem of Kobayashi density near the boundary of the backward orbit of a given point in a Fatou component. This is joint work in progress with Mi Hu and Feng Rong.

Time: 10:00-11:00 **Chair:** Chunping Zhong

Speaker: Prof. Liyou Zhang (Capital Normal University)

Title: Schwarz Symmetrization of G-Invariant Plurisubharmonic Functions

Abstract: We study Schwarz symmetrization for G-invariant plurisubharmonic functions, where G is a compact Lie group acting on $\mathbb{C}^n$ linearly and $\mathcal{O}(\mathbb{C}^n)^G = \mathbb{C}$. We show that if $\Omega \subset \mathbb{C}^n$ is a G-invariant pseudoconvex domain containing the origin and φ is a G-invariant plurisubharmonic function on Ω , then the Schwarz symmetrization $\hat{\varphi}$ is plurisubharmonic. The proof is based on orbit convexity, connectedness of invariant sublevel sets, and Berndtsson's theorem on the plurisubharmonic variation of Bergman kernels. We then apply this result to comparison problems for the residual Monge–Ampère mass, the Monge–Ampère energy, and Lelong numbers, and discuss its relation to the zero mass conjecture in the G-invariant setting. This is a joint work in progress with Yaoyao Hu and Prof. Xiangyu Zhou.

Time: 11:10-12:10 **Chair:** Yun Gao

Speaker: Prof. Sui-Chung Ng (East China Normal University)

Title: On the classification of proper holomorphic mappings between bounded symmetric domains

Abstract: By a recent result of Kim-Mok-Seo, a proper holomorphic map $f : \Omega \rightarrow \Omega'$ between two irreducible bounded symmetric domains of the same type is necessarily semi-standard if $\text{rank}(\Omega') \leq 2\text{rank}(\Omega) - 2$. On the other hand, Seo has constructed examples which are not semi-standard in the case where $2 \leq \text{rank}(\Omega') = 2\text{rank}(\Omega) - 1$. In this talk, we will talk about the classification problem for the proper holomorphic maps in this case for type-I domains. The talk is based on a recent joint work with Y. Gao and S.-Y. Kim.

Time: 15:00-16:00 **Chair:** Yum-Tong Siu

Speaker: Prof. Mihai Păun (Universit t Bayreuth)

Title: Bando's L^n curvature technique: solving the $\bar{\partial}$ equation on non-compact domains

Abstract: I will report on joint work in progress with D. Varolin. The main result generalises a theorem of S. Bando (Tohoku, 1991) on the construction of holomorphic sections of Hermitian vector bundles whose curvature satisfies certain integrability conditions. The techniques developed in Bando's paper appear to be remarkably flexible and are likely to be applicable in a much broader range of contexts.

Time: 16:30-17:30 **Chair:** Takeo Ohsawa

Speaker: Prof. Tamás Darvas (University of Maryland)

Title: Sharp $C^{1,\bar{1}}$ Estimates in Kähler Quantization

Abstract: I will discuss sharp $C^{1,\bar{1}}$ estimates for Bergman potentials in Kähler quantization. For a plurisubharmonic weight φ , with weighted Bergman kernel K_φ , we prove upper and positive lower bounds for $i\partial\bar{\partial}\log K_\varphi$ in terms of the corresponding bounds for $i\partial\bar{\partial}\varphi$. These estimates hold both locally and on compact Kähler manifolds. I will explain the analytic ideas behind the estimates and how they lead to optimal $C^{1,\alpha}$ -convergence of Bergman approximations for Kähler currents with bounded coefficients. Time permitting, I will also discuss applications to the quantization of non-pluripolar Radon measures. The talk is based on joint work with Zbigniew Błocki.

July 31 Friday

Time: 08:30-9:30 **Chair:** Sheng Rao

Speaker: Prof. Xiaoshan Li (Wuhan University)

Title: Localization of Bergman Kernels and the Cheng-Yau Conjecture on Real Analytic Pseudoconvex Domains

Abstract: In this talk, we first present a localization of the Bergman kernels for unbounded pseudoconvex domains near a D'Angelo finite type boundary point. This result was proved by Engliš more than twenty years ago for bounded pseudoconvex domains and had remained open in the unbounded setting. Closely related earlier results of this kind were obtained by Fefferman, Kerzman, Boas, Bell and the last two authors. A recent work by Ebenfelt, Xiao, and Xu contains, among other things, a solution to this problem for the unit disk bundle of a negatively curved holomorphic line bundle over a Kähler manifold.

Fundamentally using the new localization theorem for unbounded pseudoconvex domains together with a recent theorem of Mir-Zaitsev, we show that the Bergman metric of a bounded pseudoconvex domain with real-analytic boundary is Einstein if and only if the domain is biholomorphic to the unit ball, thus contributing to an old conjecture of Cheng-Yau. A crucial step in the proof is to show that the Bergman metric of a smooth (possibly unbounded) pseudoconvex domain cannot be Kähler-Einstein when the boundary contains a non-strongly pseudoconvex h-extendible point. Then we show that a bounded weakly pseudoconvex real analytic domain whose Bergman metric is Kähler-Einstein has a weakly pseudoconvex h-extendible boundary point and thus reduces the study to the h-extendible case. Finally, if time permits, we will present our recent result on the Bergman metric with constant scalar curvature (CSC). This talk is based on joint works with Chin-Yu Hsiao and Xiaojun Huang.

Time: 10:00-11:00 **Chair:** Langfeng Zhu

Speaker: Prof. Zhi Li (Beijing University of Posts and Telecommunications)

Title: The $\bar{\partial}$ equation on subbundles

Abstract: We discuss the $\bar{\partial}$ equation on subbundles with L^2 estimates. As applications, We discuss a converse to Skoda's L^2 division theorem by reformulating the problem as a $\bar{\partial}$ equation on a subbundle. This subbundle perspective applies to L^2 estimates on singular complex spaces, where the Skoda complex characterizes regularity of normal points.

This is joint work with Prof. X.-Y. Zhou, Z.-Q. Li, J.-F. Ning, X.-K. Meng.

Time: 11:10-12:10 **Chair:** Congwen Liu

Speaker: Prof. Zhitong Mi (Beijing Jiaotong University)

Title: Zhou Weights, Zhou Valuations and Valuative interpolations

Abstract: In this talk, we will recall the definitions and basic properties of Zhou weights, Zhou valuations and Tian functions. As applications, we will employ Zhou weights and Tian functions to measure the singularities of plurisubharmonic

functions and study the existence of valuative interpolations. This talk is based on a series of works by Shijie Bao, Qi'an Guan, Zhitong Mi, and Zheng Yuan.

Time: 14:30-15:30 **Chair:** Yonghong Xie

Speaker: Prof. Qingyan Wu (Linyi University)

Title: Characterization of Hardy spaces on tube domains over polyhedral cones

Abstract: I will talk about holomorphic H^1 Hardy spaces on tube domains over polyhedral cones. We establish a new reproducing formula on such domains—an iterated Poisson integral formula—which implies that holomorphic H^1 functions have boundary values in a new type of real-variable Hardy space on the Shilov boundary $\mathbb{R}^n$. Taking the iterated Poisson kernel as an approximation to the identity and using a lifting technique, we introduce various notions of multi-parameter analysis adapted to tube domains, such as twisted rectangles, new non-tangential regions, non-tangential maximal functions, Lusin–Littlewood–Paley area functions, and Littlewood–Paley g -functions. We then develop the necessary tools for studying these new Hardy spaces and apply them to prove equivalent characterizations of the holomorphic H^1 Hardy space in terms of the non-tangential maximal function, the Lusin–Littlewood–Paley area function, and the Littlewood–Paley g -function, respectively.

Time: 16:00-17:00 **Chair:** Yum-Tong Siu

Speaker: Prof. Armen Sergeev (Steklov Mathematical Institute)

Title: Theory of Topological Insulators: Quantization and BB-correspondence

Abstract: The topological insulators are the solid bodies having a broad energy gap in their spectrum which is stable under small deformations. This property motivates the usage of topological methods for their investigation. The algebras of observables of topological insulators belong to the class of C^* -algebras for which there is a variant of K -theory proposed by Van Daele. In its terms it is possible to introduce the topological invariants of the bulks of these solid bodies.

However, this approach does not work at their boundaries. Different energy bands (which do not intersect inside the bulk of the insulator) may intersect at its boundary. To deal with the boundary of the topological insulator we have to use another variant of K -theory proposed by Kasparov.

It is possible to define in its terms the boundary topological invariants. These are related with the bulk topological invariants by the BB(bulk-boundary)-map in the long exact sequence of homomorphisms of K -groups, generated by the short exact sequence of homomorphisms of C^* -algebras connecting the algebras of observables of the insulator and its boundary. This relation between the topological invariants of the bulk of the insulator and its boundary is called the BB-correspondence.

The quantization of the theory of topological insulators is based on the fact, pointed out by Kitaev, that the algebras of observables of these solid bodies are the Clifford algebras. So the problem of their quantization should reduce to the description of irreducible representations of Clifford algebras. The next step was done by Kennedy and Zirnbauer who introduced the notion of pseudosymmetries. The observables, given by the Hamiltonians of topological insulators, correspond to quantum observables given by the complex structures on the Nambu space of

observables. While the original observables satisfy the commutation relations with the symmetries of topological insulator the corresponding quantum observables satisfy the anticommutation relations with pseudosymmetries determined by the representation of the Clifford algebra.

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