NINGBO UNIVERSITY

TTbar

Exploring TTbar Deformations,Integrable Models, and String Theory

CONFERENCE PROGRAM

12-17 October 2025 / NingBo·China

Institute of Fundamental Physics and Quantum Technology（IFPQT）, Ningbo University

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ABOUT THE CONFERENCE

01. CONFERENCE OVERVIEW

The unification of quantum field theory (QFT) and gravity remains a central challenge in theoretical physics, with string theory providing a promising framework for quantum gravity. This endeavor has not only advanced fundamental physics but also spurred transformative developments in pure mathematics, mathematical physics, and high-energy theory.

This conference will bring together leading international and Chinese researchers in string theory, integrable systems, and quantum field theory to:

· Exchange cutting-edge ideas on recent breakthroughs and open challenges,

· Strengthen existing collaborations and foster new interdisciplinary partnerships,

· Explore the role of TTbar deformations and integrable models in bridging QFT, gravity, and string theory.

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02. RESEARCH THEMES

The program will focus on four interconnected themes, highlighting the synergy between theory and observation:

·Higher-Dimensional Generalizations of TTbar Deformations

Extensions of TTbar-like operators beyond two dimensions and their implications for holography and renormalization group flows.

·Root-TTbar Deformations and Integrable Models

Connections between integrability-preserving deformations, solvable lattice models, and their string-theoretic realizations.

·TTbar Deformations and Entanglement Entropy

Non-perturbative effects on quantum information measures, including holographic entanglement entropy and Page curve dynamics.

·TTbar-like Deformations as Geometric Flows

Geometric interpretations of TTbar as a worldsheet flow and links to 2D gravity and random geometry.

03. INTERDISCIPLINARY IMPACT

These themes have broad applications, including:

·Nonlinear electrodynamics and modified gravity theories,

·Supersymmetric AdS/CFT and black hole microstate physics,

·Two-dimensional CFTs and their deformed counterparts,

·Integrability in AdS/CFT and beyond.

By uniting these perspectives, the conference aims to illuminate new pathways in quantum gravity, non-perturbative QFT, and their mathematical foundations.

04. ORGANIZERS

Hossein Babaei-Aghbolagh, Ningbo University

Bin Chen, Ningbo University

Lin Chen, Ningbo University

Song He, Ningbo University

Yunfeng Jiang, Southeast University (SEU)

Wei Song, Tsinghua University (Tsinghua)

Roberto Tateo, Università degli Studi di Torino

CONFERENCE GUIDELINES

01. CONFERENCE MEALS

TIME	CONTENT	LOCATION
12:00–14:00, 13 Oct.	Lunch Break	2F Pan Thai
18:30–20:00, 13 Oct.	Dinner	2F Pan Thai
12:00–14:00, 14 Oct.	Lunch Break	2F Pan Thai
18:30–20:00, 14 Oct.	Banquet	3F Tianyi Auditorium
12:00–14:00, 15 Oct.	Lunch Break	2F Pan Thai
18:30–20:00, 15 Oct.	Dinner	2F Pan Thai
12:00–14:00, 16 Oct.	Lunch Break	2F Pan Thai
18:30–20:00, 16 Oct.	Dinner	2F Pan Thai

02. CONFERENCE NOTES

·The Opening Ceremony will start promptly at 09:00 a.m. on October 13 at Sun Lake (Third Floor) in Pan Pacific Ningbo Hotel.

·Please take good care of your personal valuables.

·Please wear your conference badge when entering or leaving the venue and the restaurant.

03. RECOMMENDATIONS FOR LOCAL TOURISM

If you have some time to explore the local attractions during the conference, we recommend the following nearby tourist spots:

·Tianyi Pavilion -This is the oldest private library in China, rich in history and cultural heritage.

·Dongqian Lake - A beautiful lake perfect for relaxation and enjoying the natural scenery.

·Ningbo Museum - This museum showcases the rich history and culture of Ningbo, an excellent place to learn about the local heritage.

·Laowaitan (Old Bund) - A historic area with many old buildings and restaurants, perfect for an evening stroll.

·Ningbo Eastern New Town - A modern urban landscape with numerous shopping centers and restaurants, great for experiencing the contemporary side of Ningbo.

We hope you can make the most of these suggestions and enjoy your time in Ningbo during the conference.

CONFERENCE AGENDA

October 13 -- Day 1

Room: 3F Sun Lake

09:00–09:15 **Opening ceremony**

First Section Chairman: Roberto Tateo

09:15–10:00 **The structure and TTbar deformations of duality-invariant p-form gauge theories in higher dimensions**
Dmitri Sorokin（INFN，Padua）

10:00–10:30 **Coffee Break**

10:30–11:15 **Form factors in irrelevant deformations of IQFTs**
Stefano Negro（University of York）

11:15–12:00 **Symmetries & locality of TTbar-deformed theories**
Ruben Monten（CERN）

12:00–14:00 **Lunch Break**

Second Section Chair: Wei Song

14:00–14:45 **Exact TTbar deformed partition functions**
Jue Hou（Southeast University）

14:45–15:30 **Symmetries and operators in TTbar deformed CFTs**
Zhengyuan Du（Tsinghua University）

15:30–16:00 **Coffee Break**

16:00–16:45 **Constructing CFTD from TQFTD+1 and Precision Discretization of CFT2**
Lin Chen（Ningbo University）

18:30–20:00 **Dinner**

October 14 -- Day 2

Room: 3F Sun Lake

First Section Chairman: Bin Chen

09:15–10:00 **Holography with Null Boundaries**
Savdeep Sethi（University of Chicago）

10:00–10:30 **Coffee Break**

10:30–11:15 **Gravity Is Not a Fundamental Force: Renormalization Group Flow Induced Gravity**
M.M. Sheikh-Jabbari（Institute for Research in Fundamental Sciences (IPM), Iran）

11:15–12:00 **Integrability in Three-Dimensional Gravity: Eigenfunction-Forced KdV Flows**
Hamed Adami（Fudan University and SIMIS）

12:00–14:00 **Lunch Break**

Second Section Chair: Jorge G. Russo

14:00–14:45 **Integrable Sigma Models From Courant-Hilbert and New Auxiliary Field Approachs**
Hossein Babaei-Aghbolagh（Ningbo University）

14:45–15:30 **Resurgence of TTbar deformed CFT**
Jie Gu（Southeast University）

15:30–16:00 **Coffee Break**

16:00–16:45 **The on-shell action of supergravity and (single-trace) TTbar**
Luis Apolo（Beijing Institute of Mathematical Sciences and Applications (BIMSA)）

18:30–20:00 **Banquet**

October 15 -- Day 3

Room: 3F Sun Lake

First Section Chairman: Dmitri Sorokin

09:15–10:00 **Black holes in nonlinear electrodynamics**
Jorge G. Russo（University of Barcelona）

10:00–10:30 **Coffee Break**

10:30–11:15 **Nonperturbative effects in TTbar-deformed conformal field theories: A toy model for Planckian physics**
Shinji Hirano（Huzhou University）

11:15–12:00 **Non-perturbative entanglement structure in TTbar deformed CFTs**
Huajia Wang（KITS，UCAS）

12:00–14:00 **Lunch Break**

Second Section Chair: Alessandro Sfondrini

14:00–14:45 **Holographic TTbar Deformation of CFT2s with Gravitational Anomaly**
Debarshi Basud（Southeast University）

14:45–15:30 **TTbar braneworld holography**
Vinayak Raj（Huzhou University）

15:30–16:00 **Coffee Break**

16:00–16:45 **Root-TTbar deformed partition functions**
Miao He（Southeast University）

18:30–20:00 **Dinner**

October 16 -- Day 4

Room: 3F Sun Lake

First Section Chairman: Yunfeng Jiang

09:15–10:00 **TBA**
Alessandro Sfondrini（Padua University）

10:00–10:30 **Coffee Break**

10:30–11:15 **Soliton Surfaces and the Geometry of Auxiliary Field Deformations**
Christian Ferko（Northeastern University）

11:15–12:00 **Higher spin deformations using auxiliary fields**
Michele Galli（University of Queensland）

12:00–14:00 **Lunch Break**

Second Section Chair: Song He

14:00–14:45 **Integrable deformations beyond integer spin**
Tommaso Morone（University of Turin）

14:45–15:30 **Holography for stress-energy tensor flows**
Hao Ouyang（Jilin University）

15:30–16:00 **Coffee Break**

16:00–16:45 **Revisiting TTbar-deformed entanglement entropy: holography and Monte Carlo**
Yi Li（Zhongnan University）

18:30–20:00 **Dinner**

October 17 -- Day 5

Discussion on TTbar deformations （All participants）

NBU AT A GLANCE

Ningbo University (NBU) is a key university of Zhejiang, China and one of the universities in the country's “Shuang Yi Liu” (“Double First-Class”) Initiative, enjoying the joint support from the provincial government of Zhejiang, the Ministry of Education (MOE) and Ningbo Municipality, as well as from the State Oceanic Administration and Ningbo Municipality.

NBU was set up in 1986 with the donations from Sir Yue-Kong Pao, the shipping magnate in Hong Kong. Mr. Deng Xiaoping inscribed the name of Ningbo University in Chinese characters “Ning Bo Da Xue” to express his best wishes for the new-born university. General Secretary Xi Jinping instructed during his administration in Zhejiang, “I hope Ningbo University will strive to become a first-class local comprehensive university in China, and make new and greater contributions to building Zhejiang into an innovative province and China into a harmonious socialist society."

In the course of its founding and development, NBU has received great care, support and help from the Communist Party committees and governments at all levels, the “Ningbobang” (“Ningbo-native merchant group”) at home and abroad and all sectors of society. In the early years, NBU owed a lot to five prestigious universities in China for their great support, namely, Zhejiang University, Fudan University, University of Science and Technology of China, Peking University, and the former Hangzhou University.

Through the hard work of generations of people from the NBU community, NBU has become a teaching and research-oriented university and made way to the Top 100 in China in comprehensive strength.

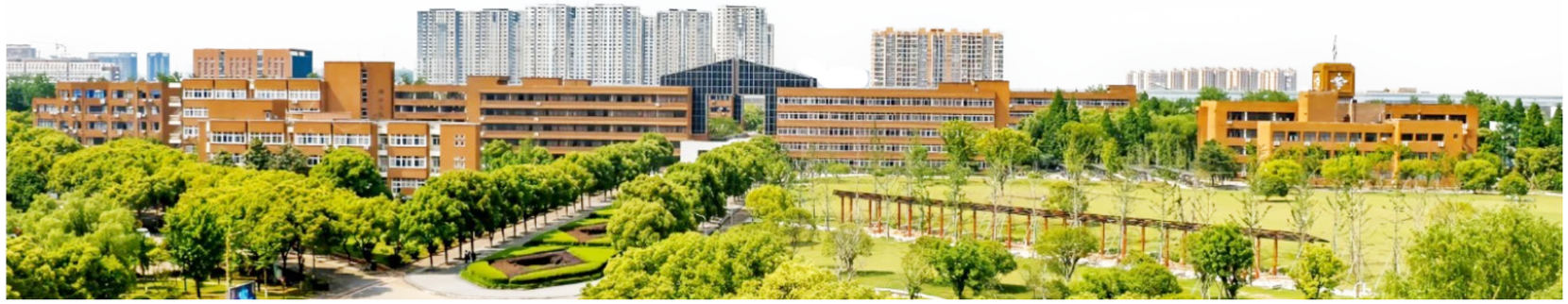
NBU is structured into 23 schools, 10 direct research institutes and 5 direct affiliated hospitals, with 12 disciplines covering economics, law, education, literature, history, science, engineering, agriculture, medicine, management, art and inter-discipline. According to Essential Science Indicators (ESI), 12 disciplines of NBU, including engineering, clinical medicine, chemistry, materials science, animal and plant science, agricultural science, environment and ecology, pharmacology and toxicology, biology and biochemistry, computer science, physics, and general social sciences, have ranked top 1% in the world.There are 9 primary doctoral programs, 9 post-doctoral research stations, 31 primary master programs, 27 professional master programs and 59 undergraduate programs.

It is entitled to exempt students from postgraduate examinations, and to enroll international students having obtained the Chinese Government Scholarship and the International Chinese Language Teachers Scholarship, as well as students from Hong Kong, Macao and Taiwan.

The campus is home to 20,162 full-time undergraduate students, 12,412 graduate students (including 213 international students), 1,126 international students (including 986 studying for academic degrees), and 7,287 students for continuing education.NBU has got 3,157 faculty members, 2,149 of whom are teachers and researchers. Among the teaching and research staff, there are 525 professors, 698 associate professors and 1,711 doctoral degree holders.

NBU has its main campus in the North Higher Education Park of Ningbo, and also the Meishan Campus, with a total area of 203.67 hectares. The NBU library covers an area of 51,000 square meters, with a collection of 3.24 million paper books and 2.58 million electronic books. Its instruments and equipment total 1.31 billion yuan in worth.

NBU is dedicated to the talent development strategy. Among its faculty members, there are 11 full-time academicians, including 2 CAS academicians and 3 CAE academicians (including 1 foreign academician), 6 foreign academicians of the Royal Academy of Engineering and other foreign academies, 36 people in the



“National Outstanding Talents Program”, 1 member of the State Council Discipline Review Group, 7 people in the “National Hundred and Thousand and Ten-Thousand Talent Project”, 7 winners of National Outstanding Youth Fund, 15 persons enjoying special allowances from the State Council, 11 winners of National Excellent Youth Fund, 3 young winners of the “Innovative Talent Promotion Program” of the Ministry of Science and Technology (MOST), 1 leading member of the "Innovative Team Development Program" of the MOE, 15 winners of the “New-Century Excellent Talents Program” of the MOE, 1 provincial top talent, 5 provincial special experts, 1 provincial leading innovation and entrepreneurship team, 13 national and provincial experts with outstanding contributions, 62 provincial excellent talents, 13 Qianjiang Scholars, 8 provincial “151 project” key funded talents and 18 first-level talents.

To be geared to the strategic needs of the state and the region, NBU attaches great importance to academic, scientific and technological innovation. In these years, NBU has won 1 second prize of the National Natural Science Award, 1 second prize of the National Technology Invention Award, and 2 second prizes of the National Science and Technology Progress Award, which are breakthroughs ever made in history. Its research level in social sciences ranks in the global top 1% according to ESI. It won 6 awards in the 8th University Excellent Achievement Awards in Social Sciences of the MOE, ranking the first in the province in the total number of awards and second prizes; It has won 6 first prizes of Zhejiang Province Science and Technology Award for 3 consecutive years.

Committed to "improving quality and efficiency" in higher education for international students in China, NBU has actively advanced international education and focused on cultivating outstanding international students with solid professional expertise, excellent academic capacities, a great knowledge of and friendly attitudes towards China. It has established cooperation and exchanges with over 100 foreign universities and research institutions, and has been selected as one of the first batch of construction bases for “Internationalized Characteristic Universities in Zhejiang Province" and the Ningbo International Cultural Exchange Base. It has also passed the national higher education quality accreditation for international students in China.

NBU has established a cooperative education institution with Angers University of France. The university offers other 3 Sino-foreign cooperative programs approved by the MOE, including the Sino-French Clinical Medicine Double Doctoral Degrees Program, the China-Australia MBA Program and the Sino-US Mathematics and Applied Mathematics Undergraduate Program. It has run two Confucius Institutes in cooperation with the University of Iceland and the Matafu University of Madagascar, 3 reverse "2+2" projects in cooperation with Moscow State Management University in Russia, Changshin University in South Korea, and Binus University in Indonesia.

NBU has been approved for the “Online International Chinese Language Teachers Scholarship Program” by the Center for Language Education and Cooperation of the MOE, the "University Graduate Program" of the Chinese Government Scholarship for the 2022-2023 academic year by the China Scholarship Council (CSC), and a leading teacher studio construction base for international student national education in Zhejiang, and taken the lead in establishing the "China-CEEC Universities Alliance on Physical Education and Research (CCUAPER)". It has also been approved for 2 international cooperation training projects for innovative talents by the CSC, including the “International Cooperation Training Project for Innovative Talents in Mechanics and Advanced Manufacturing Technology” and the “International Cooperation Training Project for Innovative Talents in Clinical Medicine”. To date, the university has sent 8 students to international organizations such as the United Nations Development Program and the United Nations International Law Commission for internships.

NBU has established close ties with universities in Hong Kong, Macao and Taiwan, such as the Chinese University of Hong Kong, the Hongkong Baptist University, the Hong Kong University of Science and Technology, the University of Macao and the Macao University of Science and Technology. It has also signed cooperation protocols with 34 universities in Taiwan, such as Taiwan Ocean University, Taiwan’s Tamkang University and Soochow University. In 1993, NBU took the lead in Chinese Mainland in initiating student exchange programs with universities in Taiwan. To date, it has exchanged student visits with Taiwan universities for 25 times. Its exchange program with the Chinese University of Hong Kong was listed as the “10,000 Talents Plan” project of the MOE.

Today, guided by the motto of “Seeking the Truth from Facts and Putting Knowledge to Practice” and the spirit of “inclusiveness, self-improvement, pragmatic innovation, and keeping pace with the times”, Ningbo University has been fully implementing the high-quality development strategy, solidly promoting the building of a "Double First-Class" university, and pressing ahead towards the goal of becoming a research-oriented university with distinctive characteristics.

NINGBO UNIVERSITY

INSTITUTE OF FUNDAMENTAL PHYSICS AND QUANTUM TECHNOLOGY（IFPQT）, NINGBO UNIVERSITY

The Institute of Fundamental Physics and Quantum Technology of Ningbo University (hereinafter referred to as the Institute of Fundamental Research) is a research institution established by Ningbo University in January 2025. Aiming at the forefront of science and technology, and addressing national major demands, the Institute of Fundamental Research plans to conduct research in four directions: fundamental physics, radio astronomy, quantum technology, and the intersection of artificial intelligence and physics. Adhering to the notion of "Upholding integrity and innovation, Serving the country through science and technology", the Institute of Fundamental Research will actively undertake national major scientific research tasks, and strive to build itself into an internationally renowned research center.

The institute currently is composed of 13 faculty members (11 professors and 2 associate professors), 7 post-doctoral fellows, 5 postgraduate students, and 3 scientific research secretaries.

Attention:

The institute recruits 5-6 postdoctoral researchers in high-energy theoretical physics globally each year. Outstanding young postdoctoral candidates are welcome to apply. Interested applicants may contact potential research supervisors at the institute. Please visit the institute's homepage for more information.

Website:https://ifpqt.nbu.edu.cn/index.htm

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