Summer School & International Conference on
Nonequilibrium and Ultrafast Quantum States

# NUQS-2026

# Conference Manual

**HOST INSTITUTIONS**

Institute of Physics, Chinese Academy of Sciences
Max Planck Institute for the Structure and Dynamics of Matter
(www.mpsd.mpg.de)
Songshan Lake Materials Laboratory
Tsientang Institute for Advanced Study

October 18-31, 2026

Beijing & Hangzhou

# CONTENTS

PART 1
Conference Notification ..... 02

PART 2
Conference Kind Reminder ..... 03

PART 3
Host Institutions and Conference Committee ..... 04

PART 4
Conference Schedule ..... 06

PART 5
Notes ..... 14

# Conference Notification

Welcome to the Summer School & International Conference on Nonequilibrium and Ultrafast Quantum States (NUQS-2026). The conference is divided into two stages in Beijing and Hangzhou, and the arrangements during the Beijing session are as follows (the conference manual for the Hangzhou session will be provided separately).
If you have any questions, please contact the conference team for assistance. Thank you!

### ◆ Conference Date
Beijing: October 18-24, 2026 (registration on October 18)
Hangzhou: October 25-31, 2026 (registration on October 25)

### ◆ Conference Room
Oct. 19-22 Summer School: M234 Conference Hall, IOP Campus
Oct. 23-24 NUQS Conference: D210 Conference Hall, IOP Campus

### ◆ Registration
Oct. 18 8:00-11:00 Beijing Wuke Hotel
Oct. 18 14:00-17:00 M234 Conference Hall, IOP Campus

### ◆ Accommodation
Beijing Xiamen Mansion Yihao Hotel
(No. 46 Zhichun Road, Zhongguancun, Haidian District, Beijing)
Beijing Wuke Hotel
(No.8, 3rd South Street, Zhongguancun, Haidian District, Beijing)

### ◆ Dining
Lunch and dinner: Canteen on the third floor of Building H, IOP Campus

### ◆ Contact Us
Chunlu Tian (cltian@iphy.ac.cn, +86 18811599152)
Jiayi Yu (jiayi.yu@iphy.ac.cn  +86 13391541966)
Yaxian Wang (yaxianw@iphy.ac.cn)
Sheng Meng (smeng@iphy.ac.cn)



# Conference Kind Reminder

**1. Please refer to the schedule in the conference manual and attend the meeting on time.**

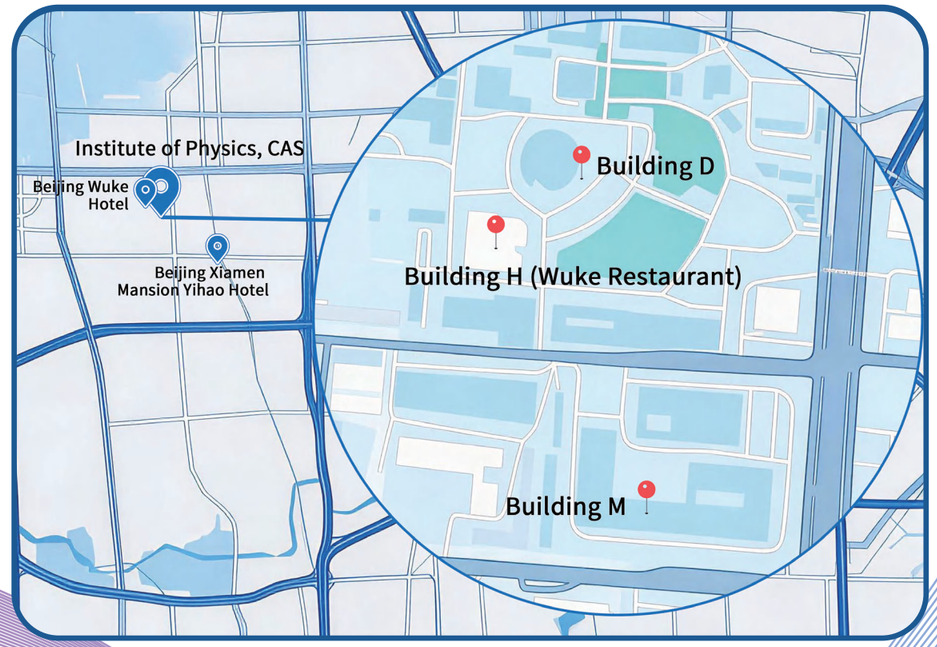
**2. Please carry your conference manual and name badge with you. Meals will be redeemed using the voucher attached to your conference manual, so please keep it safe.**

**3. Presentation slides need to be submitted to the conference team for preparation.**

**4. For participants attending the Huairou Lab tour and discussion on October 22: please bring your personal identification document and pay attention to the notification and anoucement from our organization committee.**

**5. For participants joining phase 2 in Hangzhou: please retain your conference name badge which is valid for the Hangzhou session.**

### 6. IOP Campus Map



# Host Institutions and Conference Committee

## Host Institutions

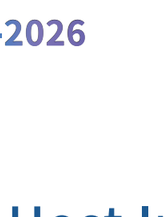
Institute of Physics, Chinese Academy of Sciences

Max Planck Institute for the Structure and Dynamics of Matter

Songshan Lake Materials Laboratory

TIAS Tsientang Institute for Advanced Study

## Conference Advisors



Lu Yu

Institute of Physics
CAS



Enge Wang

Institute of Physics
CAS



Tao Xiang

Institute of Physics
CAS



Zhong Fang

Institute of Physics
CAS



Angel Rubio

Max Planck Institute
for the Structure and
Dynamics of Matter



# Host Institutions and Conference Committee

## Local Organizing Committee



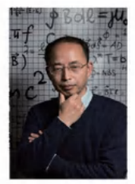
Sheng Meng/ IOP



Yuan Wan/IOP



Jimin Zhao/IOP



Yuxiang Weng/IOP



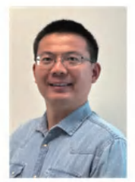
Zhaohua Cheng/ IOP



Jiangi Li/ IOP



Peng Ye/ IOP/ SLAB



Pengju Zhang/ IOP/ SLAB



Feifan Wang/ IOP/ SLAB



Chao Lian/ IOP/ SLAB



Jiyu Xu/ IOP/ SLAB



Wei Lu/ SLAB



Faran Zhou/ IOP



Yaxian Wang/ IOP



Sijie Zhang/ IOP



Shuo Dong/ IOP



Cui Zhang/ IOP



Lede Xian/ TIAS

## Summer School in Beijing

### October 19, 2026 (Monday) — M234 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Enge Wang** | | |
| 8:20-8:30 | **Zhong Fang**<br>Institute of Physics, CAS | Opening Ceremony |
| 8:30-9:30 | **Hardy Gross**<br>The Hebrew University of Jerusalem & Tsientang Institute for Advanced Study | The exact factorization, a universal approach to non-adiabaticity |
| 9:30-10:30 | **Sheng Meng**<br>Institute of Physics, CAS | Attosecond correlated electron-lattice-spin dynamics |
| 10:30-11:00 | **Break & Group Photo** | |
| **Chair: Hardy Gross** | | |
| 11:00-12:00 | **Ying Jiang**<br>Peking University | Ultrafast time-resolved scanning tunneling microscopy and spectroscopy |
| 12:00-14:00 | **Lunch** | |
| **Chair: Sheng Meng** | | |
| 14:00-15:00 | **Nanlin Wang**<br>Shanghai Jiao Tong University | Nonequilibrium & Nonlinear terahertz spectroscopy study on Higgs modes in NbN, YBCO, MgB2 superconductors |
| 15:00-16:00 | **Umberto De Giovannini**<br>Università degli Studi di Palermo | Floquet engineering in quantum materials: real-time dynamics, spectroscopy and dissipation |
| 16:00-16:30 | **Break** | |
| **Chair: Umberto De Giovannini** | | |
| 16:30-17:30 | **Jiangping Hu**<br>Institute of Physics, CAS | Non-Hermitian Quantum Many Body Physics |
| 17:30-17:45 | **Alba de las Heras**<br>Graz University of Technology (TU Graz) | High harmonic generation in a chiral topological Weyl semimetal: attosecond locally-chiral light and excited ladder electrons |
| 17:45-18:00 | **Chongxiao Fan**<br>Max Planck Institute for the Structure and Dynamics of Matter | Cavity control of multiferroic order in single-layer $NiI_2$ |
| 18:00 | **Dinner** | |



## Summer School in Beijing

### October 20, 2026 (Tuesday) — M234 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Yuan Wan** | | |
| 8:30-9:30 | **Shuyun Zhou**<br>Tsinghua University | Floquet Engineering of Quantum Materials: from black phosphorus to graphene |
| 9:30-10:30 | **Zhiyuan Sun**<br>Tsinghua University | Predicting light induced nonequilibrium states by the ponderomotive force |
| 10:30-11:00 | **Break** | |
| **Chair: Zhiyuan Sun** | | |
| 11:00-12:00 | **Yuan Wan**<br>Institute of Physics, CAS | Multidimensional Coherent Spectroscopy and Time-Domain Quantum Interference in Quantum Matter |
| 12:00-14:00 | **Lunch** | |
| **Chair: Simone Latini** | | |
| 14:00-15:00 | **Hanan Sheinfux**<br>Bar-Ilan University | Extreme confinement with hyperbolic cavities – a new platform for quantum light-matter interactions |
| 15:00-16:00 | **Matthias Kick**<br>Fritz Haber Institute | TDDFT at Large Scale: Challenges and Some Ways Around Them |
| 16:00-16:30 | **Break** | |
| **Chair: Hanan Sheinfux** | | |
| 16:30-17:30 | **Simone Latini**<br>Technical University of Denmark | Ab Initio Cavity Material Engineering: from Polaritons to Quantum Phases |
| 17:30-17:45 | **Jingkai Quan**<br>Max Planck Institute for the Structure and Dynamics of Matter | Symmetry-Guided Cavity Materials Engineering: From Cavity-induced Symmetry Breaking to Macroscopic Responses |
| 17:45-18:00 | **Jie-Cheng Feng**<br>Max Planck Institute for the Structure and Dynamics of Matter | Engineering Vacuum Fluctuations in Hyperbolic Heterostructures |
| 18:00-19:00 | **Dinner** | |
| 19:00-20:30 | **Poster** | |

## Summer School in Beijing

### October 21, 2026 (Wednesday) — M234 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Emil Viñas Boström** | | |
| 8:30-9:30 | **Qihua Xiong**<br>Tsinghua University | Manipulating Nonlinearity and Ultrafast Dynamics in 2D Microcavities and Heterostructures |
| 9:30-10:30 | **Kaihui Liu**<br>Peking University | Optical Crystals of 2D Materials |
| 10:30-11:00 | **Break** | |
| **Chair: Qihua Xiong** | | |
| 11:00-12:00 | **Angel Rubio**<br>Max Planck Institute for the Structure and Dynamics of Matter | TDDFT: from non-equilibrium phenomena to quantum materials engineering |
| 12:00-13:00 | **Lunch** | |
| 13:00-14:00 | **Brief visit of IOP, CAS** | |
| **Chair: Wentao Zhang** | | |
| 14:00-15:00 | **Xingjiang Zhou**<br>Institute of Physics, CAS | Strong Electron Pairing along Fermi Pockets in High Temperature Cuprate Superconductors |
| 15:00-16:00 | **Emil Viñas Boström**<br>Max Planck Institute for the Structure and Dynamics of Matter | Sub-diffraction Imaging of Collective Modes with Scanning Far-Field THz Spectroscopy |
| 16:00-16:30 | **Break** | |
| **Chair: Matthias Kick** | | |
| 16:30-17:30 | **Cheng Cen**<br>Institute of Physics, CAS | Uncovering Hidden Electronic Landscapes in Superconductors through Ultrafast Microscopy |
| 17:30-18:30 | **Wentao Zhang**<br>Institute of Physics, CAS | Probing and Controlling Correlated Electron Materials with TRARPES |
| 18:30 | **Dinner** | |

## Summer School in Beijing

### October 22, 2026 (Thursday) — Lab Tour & Discussion in Huairou

| Time | Lab Tour & Discussion |
|---|---|
| 9:30-11:00 | **Visit Synergetic Extreme Condition User Facility (SECUF), IOP** |
| 11:00-12:00 | **Visit Interdisciplinary Institute of Light-Element Quantum Materials, Peking University** |
| 12:00-13:00 | **Lunch** |
| 13:00-18:00 | **Discussion with IOP and PKU faculties** |
| 18:00 | **Dinner** |

## NUQS-2026 Conference

### Morning, October 23, 2026 (Friday) D210 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Jimin Zhao** | | |
| 8:30-9:00 | **Angel Rubio**<br>Max Planck Institute for the Structure and Dynamics of Matter | Cavity QED Materials Engineering: Photon-Mediated Interactions in van der Waals Heterostructures |
| 9:00-9:30 | **Heng Fan**<br>Institute of Physics, CAS | Quantum computation and simulation on superconducting processors |
| 9:30-10:00 | **Zhaohua Cheng**<br>Institute of Physics, CAS | Ultrafast Magneto-Optical Fingerprints of Altermagnetism in MnTe |
| 10:00-10:30 | **Break** | |
| **Chair: Qi Zhang** | | |
| 10:30-11:00 | **Jimin Zhao**<br>Institute of Physics, CAS | High Pressure Ultrafast Dynamics of $LaH_{10\pm\delta}$ and $La_3Ni_2O_7$ and Emergent Quantum State in 1*T*-$TaS_2$ |
| 11:00-11:15 | **Sebastián de la Peña Ruiz**<br>Max Planck Institute for the Structure and Dynamics of Matter | Quantum Driving and Entanglement in High Harmonic Generation |
| 11:15-11:30 | **Omid Nourmofidi**<br>Max Planck Institute for the Structure and Dynamics of Matter | Linking critical temperature with electron localization for cavity-enhanced superconductivity |
| 11:30-11:45 | **Francesco Greco**<br>Max Planck Institute for the Structure and Dynamics of Matter | Spin-glass mapping of electron correlations in optical cavities. |
| 11:45-12:00 | **Na Wu**<br>Max Planck Institute for the Structure and Dynamics of Matter | Quantum squeezing of phonons through crystal symmetry |
| 12:00-14:00 | **Lunch** | |

## NUQS-2026 Conference

### Afternoon, October 23, 2026 (Friday) D210 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Mengxue Guan** | | |
| 14:00-14:30 | **Fabio Caruso**<br>Rostock University | Electron-phonon interactions in the time domain: from quasiparticle dynamics to light-induced phase transitions. |
| 14:30-15:00 | **Qi Zhang**<br>Nanjing University | Coherent three-wave mixing of collective excitations in 2D antiferromagnets |
| 15:00-15:30 | **Feifan Wang**<br>Institute of Physics, CAS | Photo-induced ordering in metastable anharmonic solids |
| 15:30-16:00 | **Michael Sentef**<br>Universität Bremen | Microscopic mechanism for resonant light-enhanced pair correlations in K3C60 |
| 16:00-16:30 | **Break** | |
| **Chair: Fabio Caruso** | | |
| 16:30-17:00 | **Mengxue Guan**<br>Beijing Institute of Technology | Ultrafast Optical Control of Dynamic Symmetry and Non-Equilibrium Quantum States |
| 17:00-17:15 | **Peiwei You**<br>The Hebrew University of Jerusalem | Correlated electron-nuclear dynamics with first-principles approaches |
| 17:15-17:30 | **Lukas Grunwald**<br>Max Planck Institute for the Structure and Dynamics of Matter | Cavity Control of Strongly Correlated Electrons Beyond Resonant Coupling |
| 17:30-17:45 | **Simon Vendelbo Bylling Jensen**<br>Max Planck Institute for the Structure and Dynamics of Matter | Ultrafast Multiband Electron Dynamics in Solids: Insights from Pulse-Duration-Controlled High-Harmonic Generation |
| 17:45-18:00 | **Huimin Wang**<br>Universität Bremen | Fluence-Controlled Directional Sliding in a Polar Weyl Semimetal |
| 18:00-18:15 | **Benshu Fan**<br>Max Planck Institute for the Structure and Dynamics of Matter | First-principles Floquet analysis from real-time propagation |
| 18:15 | **Dinner** | |

## NUQS-2026 Conference

### Morning, October 24, 2026 (Saturday) D210 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Hanan Sheinfux** | | |
| 8:30-9:00 | **Ji Feng**<br>Peking University | Spin-Wave Dynamics: TDDFT Response and Adiabatic Theory |
| 9:00-9:30 | **Luyi Yang**<br>Tsinghua University | Magneto-Optical Kerr Effect in Altermagnets |
| 9:30-10:00 | **Peizhe Tang**<br>Beihang University | Light-induced Band Engineering in Layered Quantum Materials |
| 10:00-10:30 | **Break** | |
| **Chair: Peizhe Tang** | | |
| 10:30-10:45 | **Matan Tsur**<br>Max Planck Institute for the Structure and Dynamics of Matter | Measuring and controlling the birth of quantum attosecond pulses |
| 10:45-11:00 | **Roosmarijn de Wit**<br>Max Planck Institute for the Structure and Dynamics of Matter | Coupling molecular vibrations to light: how cavity-induced electron correlations modify the nuclear ground state |
| 11:00-11:15 | **Xinle Cheng**<br>Max Planck Institute for the Structure and Dynamics of Matter | Anyonic Chern Insulator in Graphene Induced by Surface Electromagnon Vacuum Fluctuations |
| 11:15-11:30 | **Jonas Reimann**<br>Max Planck Institute for the Structure and Dynamics of Matter | Towards dynamic lattice-models using time-dependent Wannier functions |
| 11:30-11:45 | **Carlos Mauricio Bustamante**<br>Max Planck Institute for the Structure and Dynamics of Matter | Tuning Optical Cavities to Enhance Molecular Raman Modes: Theoretical Approaches |
| 11:45-12:00 | **Emin Aliyev**<br>Max Planck Institute for the Structure and Dynamics of Matter | Unraveling the Role of Lattice Dynamics in the Photoinduced Phase of $Ta_2NiSe_5$ |
| 12:00-14:00 | **Lunch** | |

## NUQS-2026 Conference

### Afternoon, October 24, 2026 (Saturday) D210 Conference Hall, IOP Campus

| Time | Speaker | Talk |
|---|---|---|
| **Chair: Michael Sentef** | | |
| 14:00-14:30 | **Pengju Zhang**<br>Institute of Physics, CAS | Towards the control of electronic dynamics: from gas to solid |
| 14:30-15:00 | **Yingying Peng**<br>Peking University | Time-Resolved X-ray Studies of Chiral Charge Order and Magnetic Order Dynamics |
| 15:00-15:30 | **Jin Zhang**<br>National Center for Nanoscience and Technology, China | Artificial Intelligence Driven Nonequilibrium Materials Dynamics Simulations |
| 15:30-15:40 | **Closing Remarks** | |
| 15:40-18:00 | **Visit Peking University** | |
| 18:00 | **Dinner** | |

# NOTES

# NOTES

# NOTES

# NOTES