The 2nd International Conference of Deep Space Sciences

ICDSS 2025

CONFERENCE BROCHURE

7-11 April 2025 I Hefei, China

CONTENTS

CONFERENCE INTRODUCTION

The 2nd International Conference of Deep Space Sciences (ICDSS 2025) will be held in Hefei, the capital city of Anhui Province, from 7th to 11th April 2025. It is jointly organized by University of Science and Technology of China (USTC), the Institute of Deep Space Sciences at the Deep Space Exploration Laboratory (DSEL), and the Office of the Leading Group for Talent Work of Hefei.

China will carry out more deep space exploration missions in the next 10 to 15 years. The fourth stage of its lunar exploration program has been approved, including Chang'e-6 (launched), Chang'e-7, and Chang'e-8. The next step of the planetary exploration program is also fixed. China will implement Tianwen-3 for Mars sample return, and Tianwen-4 for Jupiter system exploration. Meanwhile, more deep space exploration missions, e.g., for the Sun, the heliopause, icy planets, and exoplanets, are in the plan.

The 2nd International Conference of Deep Space Sciences brings scientists worldwide to discuss new developments in deep space sciences. The conference consists of a series of sessions. On behalf of the Organizing Committee, we feel deeply honored to have you here at the ICDSS 2025.

HOST AND ORGANIZERS

- University of Science and Technology of China (USTC)
- Institute of Deep Space Sciences at the Deep Space Exploration Laboratory (DSEL)
- Office of the Leading Group for Talent Work of Hefei

ORGANIZING COMMITTEE

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Jiajia Liu

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Lu Pan	Liping Qin	Renhao Ruan	Daoyuan Sun
Wensi Wang	Guangfei Wei	Fei Yan	Ruizhi Yang
Bingkun Yu			

Secretariat:

Jinru Wu	Meng Guan	Liusen He	Kun Jiang
Yue Luo	Feng Wang	Jing Zi	

CONFERENCE INFORMATION

❖ Conference Date

April 7th to 11th, 2025

❖ Registration

April 7th, 2025, 09:00-21:00, Steigenberger Icons Hefei Lobby (First Floor)

❖ Official Language:

English

❖ Weather Forecast

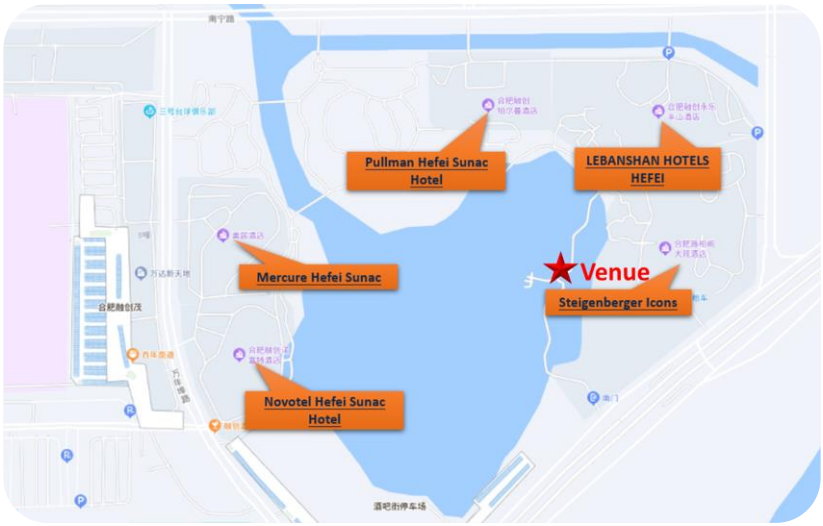
Date	Weather	Date	Weather
April 7	10℃ - 28℃	**April 10**	12℃ - 26℃
April 8	13℃ - 28℃	**April 11**	12℃ - 27℃
April 9	14℃ - 27℃	/	/

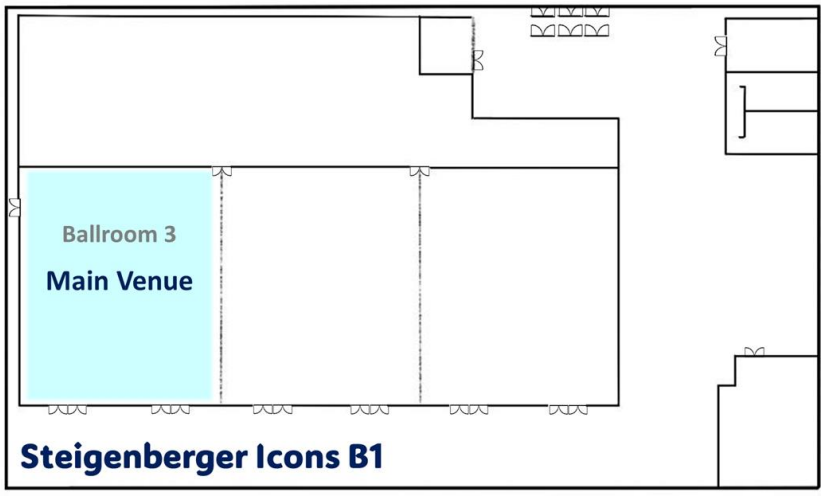
❖ Dining Arrangements

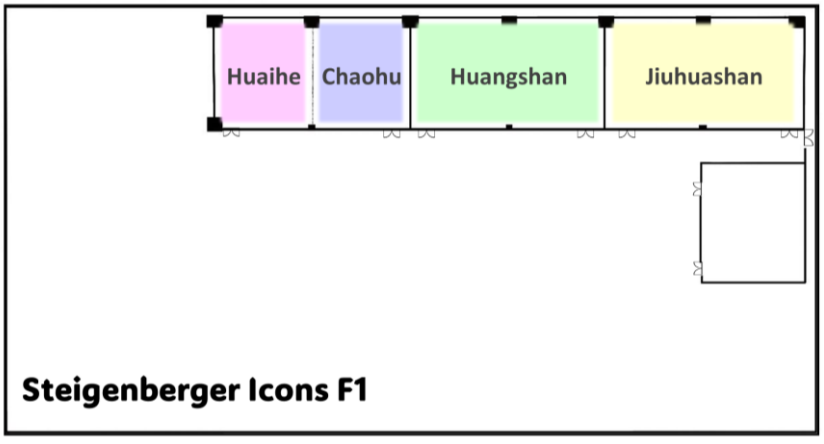
Date	Lunch（Buffet）		Dinner（Buffet）	
	Time	Place	Time	Place
April 7	/	/	18:00-20:00	Western Restaurant, F1
April 8	12:00-14:00	Western Restaurant, F1	**19:00-21:00**	**Banquet Lebanshan F1 Grandball Room**
April 9	12:00-14:00	Western Restaurant, F1	18:00-20:00	Western Restaurant, F1
April 10	12:00-14:00	Western Restaurant, F1	18:00-20:00	Western Restaurant, F1
April 11	12:00-14:00	Western Restaurant, F1	/	/

❖ Conference venue

Steigenberger Icons Hefei (No.1 Hengshan Road, Baohe District, Hefei, Anhui)







SESSIONS

Topical session 1: Sun and Heliosphere

Convenors: Jiajia Liu (China), Xin Cheng (China), Robert Erdélyi (UK), Tiago Pereira (Norway), Fang Shen (China), Hui Tian (China)

Description: This session encompasses a broad spectrum of research topics centered around understanding the magnetic field, energetics, and dynamics of solar activities, ranging from small-scale phenomena such as waves, jets/spicules, and swirls to large-scale events like flares, coronal mass ejections (CMEs), sunspots, active regions, and the dynamo. It also covers topics on the solar wind and its interaction with the interstellar medium and Earth's upper atmosphere. Abstracts related to theories, observations, numerical simulations, and machine-learning techniques of the Sun and heliosphere are highly welcome.

Topical session 2: Mars and Inner Planets

Convenors: Jingnan Guo (China), Sanchez-Cano Beatriz (UK), Jeremie Lasue (France), Yang Liu (China), Arianna Piccialli (Belgium)

Description: During the last two solar cycles, there have been rich observations from orbit and ground of the inner solar system planets, especially Mars, which has become the most explored planet after Earth. This advance has only been possible thanks to a large fleet of missions, such as Mars Global Surveyor (MGS), Mars Odyssey (ODY), Mars Reconnaissance Orbiter (MRO), Mars Express (MEX), Mars Science Laboratory (MSL), the Perseverance rover, Mars Atmosphere and Volatile Evolution (MAVEN), Trace Gas Orbiter (TGO), InSight, Chinese TianWen-I, Emirates Mars Mission (EMM), MESSENGER, BepiColombo, Venus Express (VEX), among others etc. These observations have not only greatly advanced our understanding of these planetary environments, including planetary space environment, atmospheric properties, geological evolution, and even internal structures, but also allowed comprehensive studies of different planets and their habitability in comparison to Earth. This session is dedicated to discuss about 1) the state-of-the-art development in understanding Mars and inner planets based on existing observations as well as various planetary models, 2) our knowledge gaps and open questions in the field and 3) recommendations for future studies and mission planning.

Topical session 3: Giant Planet Systems

Convenors: Chao He (China), Jihua Hao (China), Michel Blanc (France), Zhonghua Yao (HK, China)

Description: This session aims to cover a wide range of topics related with giant planets and their moons, including but not limited to: the origin and early evolution of giant planets and their moons, the interaction of giant planets and their moons, the structure of these planetary bodies and their evolution, the magnetic field of these planetary bodies and underlying mechanisms, recent findings on their atmospheres and surface composition, as well as the habitability of icy moons and the seek of potential biosignatures. We also welcome any discussions on the future mission plans and potential payloads for the exploration of giant planetary systems.

Topical session 4: Asteroids and Early Solar System

Convenors: Zhengbin Deng (China), Sebastian Charnoz (France), Frédéric Moynier (France), Liangliang Yu (China)

Description: As relics of the Solar System's infancy, asteroids contain pristine material, largely unaltered by geological processes, providing unique insights into the early stages of planetary formation, accretion, and migration. Recent space missions have revolutionized our understanding of asteroids, including NASA's OSIRIS-REx mission and Japan’s Hayabusa2 mission. The Tianwen-2 mission from China is expected to collect samples from the near-Earth asteroid 2016 HO3 and conduct a flyby of the main-belt comet 311P/PANSTARRS. There are also other space missions that have been designed for asteroids from perspectives of scientific study or planetary defense. This session is dedicated to discussion on space mission results/proposals, ongoing ground-based observations, laboratory/experimental studies, and theoretical simulations that can facilitate our understanding of asteroid diversity, planetary formation processes, and the early Solar System's dynamic evolution.

Topical session 5: Exoplanets

Convenors: Fei Yan (China), Guo Chen (China), David Cont (Germany), Enric Palle (Spain), Jiwei Xie (China)

Description: With the soaring number of discovered exoplanets and the rapid expansion of exoplanet atmosphere research, exoplanet science is becoming a frontier subject in astronomy, space and planetary science. China is planning to deploy exoplanet-related space missions such as the China Space Station Telescope, the Earth 2.0 mission, the Closeby Habitable Exoplanet Survey mission, the Tianlin mission and the Miyin mission. This session will focus on topics including exoplanet detection, atmosphere characterization, planetary formation and statistics. The session aims to facilitate communication and collaboration between the Chinese and international exoplanet communities and promote the long-term development of the exoplanet field.

Topical session 6: Space Astronomy

Convenors: Ruizhi Yang (China), Changqing Feng (China), Markus Ackermann (Germany), Jian Li (China), Diego Torres (Spain)

Description: Gamma-ray space astronomy is a crucial field for exploring the high-energy universe, offering unique insights into some of the most extreme and energetic phenomena in astrophysics. This session will focus on recent advancements and future directions in gamma-ray observations, particularly in the MeV to TeV energy range, with a special emphasis on space-based gamma-ray telescopes.The session will cover a broad range of topics, including the detection of gamma-ray emissions from pulsars, black holes, active galactic nuclei, gamma-ray bursts, and supernova remnants. We will also delve into the role of gamma-ray astronomy in probing the mysteries of dark matter, cosmic ray propagation, and the particle acceleration mechanisms in extreme astrophysical environments.

Topical session 7: Extraterrestrial Resources and Moon Station

Convenors: Xiaodong Ma (China), Hyusoung Shin (South Korea), Xuhai Tang (China), Qi Zhao (HK, China), Kun Jiang (China)

Description: This session explores the growing potential and challenges of utilizing extraterrestrial resources and establishing sustainable operations on the Moon and other rocky bodies. Experts from leading space agencies, academia, and industry will explore strategies for harnessing in-situ extraterrestrial resources - such as water ice, regolith, and minerals - and the geotechnical challenges involved in excavation, construction, and infrastructure development in the extreme environments. Topics of interest include, but are not limited to, the properties of planetary soils and rocks, in-situ resource utilization, drilling and sample extraction, and the design of structures for extreme environments. We encourage submissions that present novel methodologies, new results, theoretical advancements, and case studies related to the technical aspects of lunar, Martian, and asteroid exploration. This session will provide a platform for interdisciplinary dialogue, fostering collaboration and knowledge exchange to advance our understanding and capabilities in this frontier field.

Special session 1: Apophis 2029

Convenors: Jianyang Li (China), Gonzalo Tancredi (Uruguay), Yang Yu (China)

Description: Apophis, a 340 m diameter potentially hazardous asteroid, will have a close encounter with Earth at a geocentric distance of ~6 Earth radii, i.e., near the geostationary orbital altitude, on April 13, 2029. This rare encounter will enable an unprecedented opportunity in asteroid science, planetary defense, and public outreach. NASA, ESA, and many other space agencies, research institutes, and commercial aerospace companies have proposed missions, concepts, and plans using ground- or space-based facilities to explore Apophis and its possible changes due to the tidal interaction with Earth during the encounter. In response to this event, the Committee on Peaceful Use of Space of the United Nations has designated the year of 2029 as the International Year of Planetary Defense. A large-scale public engagement is expected for this event. This session welcomes abstracts in all aspects related to the Apophis 2029 encounter opportunity, including science mission concepts, engineering development, ground- and space-based observations, studies of the changes on the asteroid, possible interaction with near-Earth space such as magnetosphere, implications for planetary defense, related international collaborations, and the related public and educational activities, etc.

Special session 2: Landing Site Selection for Mars Sample Return

Convenors: James Head (USA), Yang Liu (China), Yiliang Li (HK, China), Liping Qin (China), Lu Pan (China), David Flannery (Australia)

Description: As the most Earth-like and closest planet to us, Mars has sparked human curiosity about the existence of life throughout the 60-year history of exploration. Discoveries of potential indicators of habitability—such as clay minerals, seasonal variations in atmospheric methane, and subsurface water ice—suggest that ancient Mars may have been habitable for microbes. Consequently, conducting laboratory studies on returned samples is seen as the next scientific priority in Mars exploration. This objective has driven the development of sample-return missions by the United States and China. The U.S. plans to return Mars samples in 2033, following the successful launch of the Perseverance rover to collect samples beforehand. Similarly, China's Tianwen-3 mission is scheduled to return Mars samples around 2031. These missions offer an unprecedented opportunity to advance the search for potential evidence of Martian life or its organic precursors. Identifying a landing site that enables scientists to maximize possible discoveries about past and present life on Mars, while providing a scientifically compelling and diverse set of samples for potential return to Earth, is crucial for the success of these missions. In this workshop, we will revisit the selection of landing sites from past missions, share the latest research advancements, present methods for assessing and exploring the potential biological history of Mars, and discuss their implications for future landing site selection. In addition, we will propose candidate landing sites with significant scientific value for the upcoming Tianwen-3 mission.

KEYNOTE SPEAKERS

Beatriz Sanchez-Cano

University of Leicester

Title: From the Sun to Mars' Surface: How Solar Energetic Particles Affect Mars' Atmosphere and Ionosphere

◆ Abstract

This talk will focus on our current knowledge of the Martian ionosphere, how it is affected by space weather activity, and how it compares to other planets. In particular, I will focus on recent advances in the understanding of the Martian plasma system reaction to showers of solar energetic particles, particularly focusing on one of the largest widespread SEP events of the current solar cycle that occurred on 15 February 2022, and it was observed by almost all missions deployed in the inner solar system, from near the Sun up to the Martian surface. Finally, I will give my perspective on some of the key outstanding questions that still remain unknown but are part of the next generation of Mars' ionospheric science and exploration.

◆ Biography

Beatriz Sánchez-Cano is a researcher at the University of Leicester in UK. Her research focuses on the ionosphere of Mars, for which she revealed a complex variability based on multi-instrument and multi-mission data processing, analysis and interpretation, as well as numerical modelling. Her studies have contributed significantly to our understanding of ionospheric physics, such as the use of the Martian total electron content as a tracer for atmospheric cycles, the solar cycle effect on Mars' ionosphere, and the response of Mars' atmosphere to solar wind events.

Jun Lin

Yunnan Astronomical Observatory

Title: Introduction of the Solar Close Observations and Proximity Experiments (SCOPE)

◆ Abstract

The Solar Close Observations and Proximity Experiments (SCOPE) mission will send a spacecraft into the solar atmosphere at the lowest altitude of 5 solar radii (R_sun) from the solar center. The purpose is to solve the puzzles regarding what causes the solar eruption and what heats the corona, and to realize breakthroughs in directly measuring the coronal magnetic field. The mission is to perform in-situ measurements of the current sheet (CS) between the coronal mass ejection (CME) and the associated solar flare, and energetic particles produced by either reconnection or the fast-mode shock driven by CME. This will help answer the questions what the nature of the reconnection CS is, and where the energetic particles are accelerated. To answer the question of what heats the corona, the mission will observe nano-flares on scales smaller than 70 km in the corona and regions smaller than 40 km in the photosphere, where MHD waves originate. To address the question of what accelerates the solar wind, the mission will also track the process of ion charge-state freezing in the solar wind. The breakthrough will be achieved as the coronal magnetic field is detected directly at the lowest altitude ever. The polar regions will also be observed at the shortest distance, and the inner edge of the solar system's dust disk might be identified for the first time. This work presents in detail the background, the science, and the mission concept of SCOPE, and discusses how the mission helps solve the puzzles mentioned above.

◆ Biography

Dr. Jun Lin is a solar physicist working at the Yunnan Astronomical Observatories of the Chinese Academy of Sciences. His primary research concerns solar eruptions, including solar flares, eruptive prominence, coronal mass ejections, and transient disturbances in the interplanetary medium around the Earth (also known as Space Weather) and their effects on the Earth. Dr. Lin's work covers both theory and observations. One of Dr. Lin's best-known accomplishments is the Lin-Forbes model of solar eruptions, widely recognized as one of the classical standard solar eruption models. Other important achievements Dr. Lin made include pioneering studies on direct observations and analyses of essential features of solar eruptions predicted by the Lin-Forbes model. These features include the magnetic reconnection region or the current sheet, the reconnection inflows and outflows, as well as the huge thickness and turbulent structures of the current sheet. Dr. Lin pointed out that it is the turbulence that accounts for both the huge thickness of the current sheet and the large rate of magnetic reconnection occurring inside such a current sheet.

Yang Liu

National Space Science Center

Title: Evolution of Martian Habitability and the Search for Biosignatures on Mars

◆ Abstract

As the planet in the solar system most similar to Earth, Mars has become one of the primary targets for deep space exploration due to its rich history of ancient water activity on the surface and the potential preservation of signs of ancient life. Unlike Earth, which has maintained active chemical weathering and geological processes, Mars experienced extensive water-related chemical weathering during its early history (particularly between 4.5 and 3.5 billion years ago). However, due to the subsequent loss of its atmosphere and water, chemical weathering on Mars nearly ceased, allowing its early evolutionary processes to be remarkably well-preserved. Over the last decades the Mars science community has made significant progress in addressing key science and exploration goals of Mars, while there are still critical scientific questions to be answered about the evolution of habitability and the biosignatures on Mars. This talk will discuss some important scientific questions related to the habitability of Mars, show the scientific progress made by China's Tianwen-1 Mars mission, and introduce the upcoming Tianwen-3 Mars sample return mission that could help answer key questions about potential life on Mars.

◆ Biography

Yang Liu is a research scientist at the National Space Science Center of the Chinese Academy of Sciences (CAS). He got his Ph.D. in Washington University in St. Louis and was an Urey fellow at Lunar and Planetary Institute (LPI) in Houston. He was a co-investigator on NASA's Lunar Reconnaissance Orbiter (LRO) mission, and he also participated NASA's Mars Reconnaissance Orbiter (MRO) mission and ESA's Mars Express mission. Currently Yang Liu serves as a team member of a few China's space exploration missions including Chang'e and Tianwen-1/3 missions. His research program is focused on understanding the formation and evolution of planetary bodies by integrating remote sensing observations, quantitatively theoretical modeling, and laboratory spectroscopy.

Gregory Herczeg

Pecking University

Title: Searching for Planets in Formation

◆ Abstract

A decade ago, ALMA released the stunning image of HL Tau, a young disk characterized by a series of gaps and rings in the dust. ALMA and other facilities have continued to produce evidence for planet formation. However, we still cannot distinguish whether the most common features are evidence of ongoing planet formation or evidence of planets that already exist. In this talk, I will review how we observe protoplanetary disks, highlighting the contributions from ALMA, and describe the frustrating search for exoplanets in those disks.

◆ Biography

Gregory Herczeg is a Professor at the Kavli Institute for Astronomy and Astrophysics at Peking University. His research centers on observational studies of star and planet formation, particularly the growth mechanisms of stellar and planetary systems. Leveraging cutting-edge astronomical facilities and advanced computational modeling, his work has advanced our understanding of protoplanetary disk dynamics and stellar envelope evolution. His contributions include pioneering investigations into planet formation processes within circumstellar disks and the interplay between young stars and their accretion environments.

Frédéric Moynier

IPGP/Université Paris Cité

Title: Tracing the Solar System Volatile Elements Origin with Stable Isotopes of Metals

◆ Abstract

I will present how stable isotopes of moderately volatile elements have reshaped our understanding of planetary volatile acquisition and their application to the origin of the Moon.

◆ Biography

Frédéric Moynier is a professor at Université Paris Cité and the head of the Origins research themes at the Institut de Physique du Globe de Paris (IPGP). A specialist in stable and radiogenic isotope geochemistry, his research focuses on the origin, differentiation, and early evolution of the Earth, the Moon, and terrestrial planets.

Frédéric Moynier has contributed to major discoveries regarding planetary formation, planetary differentiation, and the formation of the earliest terrestrial and Martian crusts. He is also involved in several international space missions, including MMX and Hayabusa2 (JAXA).

A recipient of prestigious awards such as the Grand Prix Mme Victor Noury (2020) from the Institut de France, the Kuno Medal from the American Geophysical Union, the Houtermans Medal from the European Association of Geochemistry, and the Nier Prize from the Meteoritical Society, he is also a Fellow of the American Geophysical Union and the Meteoritical Society.

INVITED SPEAKERS

Felix Aharonian *The Dublin Institute for Advanced Studies (DIAS), Ireland*

Title: Science in MeV band

Jean-Pierre Barriot *Wuhan University, China*

Title: A Review about our Current Knowledge of the Population of Asteroids and Physical Properties

Pierre Beck *Institut d'astrophysique et de planétologie de Grenoble/ISTerre, France*

Title: Meteorites-asteroid connection and some lessons from returned samples

Michel Blanc *Institut de Recherche en Astrophysique et Planeologie, Toulouse, France*

Title: Momentum and energy transfer processes in the Jupiter system

Agnes Cousin *Institut de Recherche en Astrophysique et Planétologie, Toulouse, France*

Title: Mars2020 mission overview and main results from SuperCam instrument

Ruobing Dong *Peking University, China*

Title: Inferring planets forming in protoplanetary disks from observations

Zehua Dong *Beijing Institute of Technology, China*

Title: Ground-based Radar Observations of Apophis: Concept and Prospect

David Ehrenreich *University of Geneva, Switzerland*

Title: The Characterising Exoplanet Satellite (CHEOPS)

Siteng Fan *Southern University of Science and Technology, China*

Title: Results from the Emirates Mars Mission: The Big Picture at the Red Planet

Jian Ge *Shanghai Astronomical Observatory, Chinese Academy of Sciences, China*

Title: The Earth 2.0 (ET) Space Mission

Mingyu Ge *Institute of High Energy Physics, Chinese Academy of Sciences, China*

Title: EXTP mission

Lina Hadid *Laboratoire de Physique des Plasmas, France*

Title: Heavy ion observations in the magnetospheres of Venus and Mercury by the BepiColombo spacecraft

Jihua Hao *University of Science and Technology of China, China*

Title: Dynamic habitability of icy moons

Jiansen He *Peking University, China*

Title: Tracing the Origins: Solar Wind and Wave Propagation from the Sun to the Heliosphere

Zhenyong Hou *Peking University, China*

Title: Radio dimming associated with filament eruptions in the meter and decimeter wavebands

Jianghui Ji *Purple Mountain Observatory, China*

Title: Closeby Habitable Exoplanet Survey (CHES): An Astrometric Mission to Explore Nearby Habitable Worlds/ Beyond the Threat: A Multidisciplinary Exploration of Asteroid Apophis for Science and Cosmic Hazard Mitigation

Chichuan Jin *National Astronomical Observatories, China*

Title: The Einstein Probe Mission

Taifeng Jin *Wuhan University*

Title: Martian foreshock ULF waves and their modulation on suprathermal electrons

Tomoki Kimura *Tokyo University of Science, Japan*

Title: Energy and mass transport in the Jupiter system probed with space telescopes and laboratory experiments

Dali Kong *Shanghai Astronomical Observatory, China*

Title: Equatorial eastward jet in Jupiter's atmosphere reveal the signatures of the deep helium rain layer

Sebastien Lebonnois *Laboratoire de Météorologie Dynamique, France*

Title: Some elements to understand the deep atmosphere of Venus

Feng Li *Beihang University, China*

Title: Enhanced Algorithms for Three-Dimensional Morphological Analysis of Chang'e-5 Lunar Soil Using Deep Learning-Automated Segmentation on High-Resolution CT

Mingtao Li *National Space Science Center, Chinese Academy of Sciences, China*

Title: Research Progress on New Concept Planetary Defense Technologies

Yufeng Lin *Southern University of Science and Technology, China*

Title: Numerical Simulations of Magnetic Effects on Zonal Flows in Giant Planets

Beibei Liu *Zhejiang University, China*

Title: Early Solar System Giant Planet Instability Triggered by Gas Disk Dispersal

Xi Luo *Shandong Institute of Advanced Technology, China*

Title: Study the interplanetary space radiation induced by galactic cosmic rays

Lucia Mandon *Institute for Planetary Sciences and Astrophysics, Grenoble, France*

Title: Early Mars samples collected by the Perseverance rover from the Mars 2020 mission

Lei Ni *Yunnan Observatory, China*

Title: Energy and mass transport associated with impulsive jet flows in solar coronal holes

Chris Ormel *Tsinghua University, China*

Title: From Planetesimals to Dwarf Planets by Pebble Accretion

Dominic Papineau *Institute for Deep-Sea Science and Engineering, CAS. China*

Title: Evidence for abiotic carbon cycling in two Martian meteorites suggest prebiotic reactions on ancient Mars

Tanmoy Samanta *Indian Institute of Astrophysics, India*

Title: Small-scale Transients in the Sun's Atmosphere

Julien Siebert *Institut de Physique du Globe de Paris/Université Paris Cité, France*

Title: Accretion of volatile elements on Earth without late veneer

Paolo Sossi *Eidgenössische Technische Hochschule Zürich, Switzerland*

Title: Composition, Structure and Origin of the Moon

Xuhai Tang *Wuhan University, China*

Title: Drillability Assessment of Martian Weathered Rocks Integrating Generative AI and Geological Knowledge

Dmitrij Titov *Sun Yat-Sen University, China*

Title: Venus: the planet of continuous mysteries

Haiyang Wang *University of Copenhagen, Denmark*

Title: Forming rocky worlds: Devolatilization matters

Wei Wang *National Astronomical Observatories, China*

Title: Tianlin: a 6+ meter Space Telescope for Habitable Worlds and Extraterrestrial Lifes

Wenzhong Wang *University of Science and Technology of China, China*

Title: Isotopes of volatile elements reveal the origin and evolution of Earth's volatiles

Robert F. Wimmer-Schweingruber *Kiel University, Germany*

Title: Solar Energetic Particles From Sun to Space, Moon, and Mars

Chen Xing *Nanjing University, China*

Title: Initiation Route of Coronal Mass Ejections

Chi Yan *University of Texas at Austin, USA*

Title: Stable Layers as a Catalyst for Dipolar-Dominated Magnetic Fields in Gas Giants

Yihua Yan *National Space Science Center, Chinese Academy of Sciences, China*

Title: Towards 3D Radio Multifrequency Imaging Observation of the Sun and Heliosphere

Zhonghua Yao *The University of Hong Kong, Hong Kong, China*

Title: New understandings on the magnetospheric structure and future perspectives

Qiang Yuan *Purple Mountain Observatory, China*

Title: Direct measurements of cosmic ray spectra with DAMPE and the implications

Qi Zhao *The Hong Kong Polytechnic University, Hong Kong, China*

Title: Micro-CT characterization of the Chang'e-5 lunar regolith samples

Jilin Zhou *Nanjing University, China*

Title: MEAYIN Mission——Space Infrared Observatory in the Post-JWST Era

Liyong Zhou *Nanjing University, China*

Title: A shape index of Yarkovsky effect on irregularly shaped asteroids

CONFERENCE AGENDA

Date	Time	Content			
April 7	09:00-21:00	Registration			
April 8	08:30-12:00	Opening and Keynote Lectures Ballroom 3			
Date	**Time**	**Jiuhuashan**	**Huangshan**	**Chaohu**	**Huaihe**
April 8	14:00-17:30	T1: Sun and Heliosphere	T3: Giant Planet Systems	T5: Exoplanets	S2: Landing Site Selection for Mars Sample Return
April 9	08:30-12:00	T1: Sun and Heliosphere	T3: Giant Planet Systems	T5: Exoplanets	T6: Space Astronomy
	14:00-17:30	LAB TOUR			
April 10	08:30-12:00	T1: Sun and Heliosphere	T2: Mars and Inner Planets	T4: Asteroids and Early Solar System	S1: Apophis 2029
	14:00-17:30	T7: Extraterrestrial Resources and Moon Station	T2: Mars and Inner Planets	T4: Asteroids and Early Solar System	S1: Apophis 2029
Apri 11	08:30-12:00	T1: Sun and Heliosphere	T2: Mars and Inner Planets	/	/

Opening Ceremony and Keynote Lectures

April 8th 2025 08:30-12:00

Venue: Steigenberger Icons B1 Ballroom 3

Chair: Chenglong Shen, Dmitrij Titov

No.	Time	Title	Name	Affiliation
1	08:30-08:40	**Welcome Speech from the Conference President**		
2	08:40-08:50	**Welcome Speech from the Deep Space Exploration Laboratory Leadership**		
3	08:50-09:00	**Welcome Speech from Hefei Municipal Leadership**		
4	09:00-09:30	**Keynote:** From the Sun to Mars' Surface: How Solar Energetic Particles Affect Mars' Atmosphere and Ionosphere	Beatriz Sanchez-Cano	University of Leicester
5	09:30-10:00	**Keynote:** Introduction of the Solar Close Observations and Proximity Experiments (SCOPE)	Jun Lin	Yunnan Astronomical Observatory
6	10:00-10:30	***Group Photo & Tea Break***		
7	10:30-11:00	**Keynote:** Evolution of Martian Habitability and the Search for Biosignatures on Mars	Yang Liu	National Space Science Center
8	11:00-11:30	**Keynote:** Searching for Planets in Formation	Gregory Herczeg	Peking University
9	11:30-12:00	**Keynote:** Tracing the Solar System Volatile Elements Origin with Stable Isotopes of Metals	Frédéric Moynier	IPGP/Université Paris Cité

T1: Sun and Heliosphere

April 8th 2025 14:00-17:25
Venue: Steigenberger Icons F1 Jiuhuashan Room
Chair: Jiajia Liu, Robert Erdélyi

No.	Time	ID	Title	Presenter	Affiliation
1	14:00-14:25	556	**Invited:** Energy and mass transport associated with impulsive jet flows in solar coronal holes	Lei Ni	Yunnan Observatories, Chinese Academy of Sciences
2	14:25-14:40	569	Solar Jets - What can they tell us about the solar dynamo?	Robert Erdélyi	University of Sheffield
3	14:40-14:55	518*	Data-constrained 3D MHD Simulation of a Spiral Jet Caused by an Unstable Flux Rope Embedded in Fan-spine Configuration	Zhuofei Li	Nanjing University
4	14:55-15:10	458	Modal analysis and reduced order representation of solar coronal magnetic reconnection	Fan Zhang	University of Oslo
5	15:10-15:25	334*	Automatic Identification and Statistical Analysis of the Coronal Holes	Junyan Liu	University of Science and Technology of China
15:25-16:00 Tea Break					
6	16:00-16:25	452	**Invited:** Small-scale Transients in the Sun's Atmosphere	Tanmoy Samanta	Indian Institute of Astrophysics
7	16:25-16:40	531*	Photospheric Swirls in a Quiet-Sun Region	Quan Xie	University of Science and Technology of China
8	16:40-16:55	558	Spectral diagnostics of the lower chromosphere with the Hε line	Tiago M. D. Pereira	University of Oslo
9	16:55-17:10	634	Role of Magnetic Fields and Electric Currents in Generating Hard X-Ray Asymmetry at Solar Flare Footpoints	Mirabbos Mirkamalov	University of Science and Technology of China/Samarkand State University
10	17:10-17:25	635	Explore the Potential of Large Language Models in Astronomy: a pilot application framework implemented in Solar Physics	Jiaben Lin	National Astronomical Observatories of China

* marked presentation participate in the best presentation award.

T1: Sun and Heliosphere

April 9th 2025 08:30-11:55

Venue: Steigenberger Icons F1 Jiuhuashan Room

Chair: Xin Cheng, Yutian Chi

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:55	461	**Invited:** Tracing the Origins: Solar Wind and Wave Propagation from the Sun to the Heliosphere	Jiansen He	Peking University
2	08:55-09:10	580	Tracking an eruptive intermediate prominence originating from the farside of the Sun	Qingmin Zhang	Purple Mountain Observatory
3	09:10-09:25	627	Witnessing a transition from coronal rain to prominence condensation	Yidian Wu	University of Science and Technology of China
4	09:25-09:40	549*	Modeling of propagating kink waves in coronal open-field region	Yuhang Gao	Peking University
5	09:40-09:55	628*	Waiting time distribution of solar flares in the super active region 13664 during its lifetime	Yue Zhang	University of Science and Technology of China
9:55-10:30 Tea Break					
6	10:30-10:55	613	**Invited:** Solar Energetic Particles from Sun to Space, Moon, and Mars	Robert F. Wimmer-Schweingruber	Kiel University
7	10:55-11:10	463	The first observation of later arrival of more energetic particles during solar eruptions observed by the Solar Orbiter mission	Yuncong Li	University of Science and Technology of China
8	11:10-11:25	525*	Radial dependence of SEP peak fluxes and fluences	Yihang Cao	University of Science and Technology of China
9	11:25-11:40	484	Comparison of Galactic Cosmic Ray Models with the state-of-the-art Particle Measurements	Jingnan Guo	University of Science and Technology of China
10	11:40-11:55	536*	On the energy-dependent delay of the GCR modulation versus solar activities	Yubao Wang	University of Science and Technology of China

* marked presentation participate in the best presentation award.

T1: Sun and Heliosphere

April 10th 2025 08:30-11:55

Venue: Steigenberger Icons F1 Jiuhuashan Room

Chair: Qingming Zhang, Tiago Pereira

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:55	514*	**Invited:** Initiation Route of Coronal Mass Ejections	Chen Xing	Nanjing University
2	08:55-09:10	516	Exploring CME and CIR-Induced Shock Stacking via Monte Carlo Simulations	Xin Wang	Xinjiang Astronomical Observatory, Chinese Academy of Sciences
3	09:10-09:25	507	Toward Understanding Coronal Mass Ejection Initiation	Xin Cheng	Nanjing University
4	09:25-09:40	581*	Why Could a Newborn Active Region Produce Coronal Mass Ejections?	Hanzhao Yang	Sun Yat-sen University
5	09:40-09:55	454*	Origin of reconnecting current sheets in shocked turbulent plasma	Shimou Wang	University of Science and Technology of China
9:55-10:30 Tea Break					
6	10:30-10:55	520	**Invited:** Radio dimming associated with filament eruptions in the meter and decimeter wavebands	Zhenyong Hou	Peking University
7	10:55-11:10	541*	Modeling Stellar Winds of Solar-Type Stars Across Rotation Rates Using Dynamo-Generated Magnetograms	Yuehong Chen	Nanjing University
8	11:10-11:25	456	Forecasting of the Geomagnetic Activity for the Next 3 Days Utilizing Neural Networks Based on Parameters Related to Large-scale Structures of the Solar Corona	Tingyu Wang	Key Laboratory of Solar Activity and Space Weather, National Space Science Center, Chinese Academy of Sciences
9	11:25-11:40	455	Pickup Ion Mediated Shocks in the Outer Heliosphere	Sizhe Liu	Harbin Institute of Technology, Shenzhen
10	11:40-11:55	610*	Connecting the small solar wind transients observed remotely to their in-situ measurement near 1 AU	Shaoyu Lyu	University of Science and Technology of China

* marked presentation participate in the best presentation award.

T1: Sun and Heliosphere

April 11th 2025 08:30-11:30
Venue: Steigenberger Icons F1 Jiuhuashan Room
Chair: Wensi Wang, Hui Tian

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:55	563	**Invited:** Towards 3D Radio Multifrequency Imaging Observation of the Sun and Heliosphere	Yihua Yan	National Space Science Center, Chinese Academy of Sciences
2	08:55-09:10	495	Observing the evolution of the solar global coronal magnetic field	Hui Tian	Peking University
3	09:10-09:25	631*	Numerical MHD Modelings of Failed Solar Eruptions: Constraints and Observational Manifestations	Jinhan Guo	Nanjing University
4	09:25-09:40	487	Polarized kink oscillations in solar coronal loops	Mingzhe Guo	Shandong University
5	09:40-09:55	542*	Modeling energetic proton transport in a stream interaction region	Xinyi Tao	National Space Science Center, CAS
9:55-10:30 Tea Break					
6	10:30-10:45	460	The evolution of the switchback across the bow shock	Zhijian Zhang	University of Science and Technology of China
7	10:45-11:00	559	Meridian Project Phase II Interplanetary Scintillation Telescope	Jin Fan	National Astronomical Observatories & National Space Science Center, CAS
8	11:00-11:15	597*	Design, Assessment, and Calibration of the Moon-Aiming Thai-Chinese Hodoscope for Observing Cosmic Ray Electrons, Solar Energetic Particles, and Lunar Albedo Ions	Pradiphat Muangha	National Astronomical Research Institute of Thailand
9	11:15-11:30	504	Using CubeSats for Space Weather Monitoring and Solar Wind Analysis	Warda Giallani	IST

* marked presentation participate in the best presentation award.

T2: Mars and Inner Planets

April 10th 2025 08:30-11:55
Venue: Steigenberger Icons F1 Huangshan Room
Chair: Jingnan Guo, Beatriz Sanchez-Cano

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:55	590	**Invited:** Venus: the planet of continuous mysteries	Dmitrij Titov	Sun Yat-sen University
2	08:55-09:10	494*	Contribution of Diurnal Tide to Venus Cloud-Top Superrotation	Dexin Lai	University of Science and Technology of China
3	09:10-09:25	335	Observed Martian High-frequency gravity waves by Zhurong and Perseverance rovers before / after a regional dust storm	Chengyun Yang	University of Science and Technology of China
4	09:25-09:40	600	The Atmospheric Response to an Unusual Early-Year Martian Dust Storm	Cong Sun	Southern University of Science and Technology
5	09:40-09:55	618	Impacts of Gravity Waves in the Martian Ionospheric Disturbances	Chunhua Jiang	Wuhan University
9:55-10:30 Tea Break					
6	10:30-10:55	284	**Invited:** Martian foreshock ULF waves and their modulation on suprathermal electrons	Taifeng Jin	Wuhan University
7	10:55-11:10	511	Simultaneous Two-Point Study of the Martian Bow Shock Affected by an Interplanetary Coronal Mass Ejection: Tianwen-1 and MAVEN Observations	Ming Wang	Nanjing University of Information Science and Technology
8	11:10-11:25	142	An extreme escape of atomic hydrogen from Mars	Zhenpeng Su	University of Science and Technology of China
9	11:25-11:40	449	The Magnetosheath Plasma Flow of Mars: Observation Results and Model	Heyin Wang	Harbin Institute of Technology, Shenzhen
10	11:40-11:55	464	Seismic insights into the origin of the Martian dichotomy	Weijia Sun	Institute of Geology and Geophysics, CAS

* marked presentation participate in the best presentation award.

T2: Mars and Inner Planets

April 10th 2025 14:00-17:20
Venue: Steigenberger Icons F1 Huangshan Room
Chair: Zhenpeng Su, Lu Pan

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:25	540 Online	**Invited:** Heavy ion observations in the magnetospheres of Venus and Mercury by the BepiColombo spacecraft	Lina Hadid	LPP, CNRS, École Polytechnique, France
2	14:25-14:40	173	Three-dimensional global hybrid simulations of interaction between solar wind and Mercury's magnetosphere	San Lu	University of Science and Technology of China
3	14:40-14:55	517	Investigating CME-driven Shock Interactions with Planetary Bow Shocks via Monte Carlo Simulations	Xin Wang	Xinjiang Astronomical Observatory, Chinese Academy of Sciences
4	14:55-15:10	309	The M-MATISSE mission: Mars Magnetosphere Atmosphere Ionosphere and Space weather Science An ESA Medium class (M7) candidate	Beatriz Sanchez-Cano	University of Leicester
5	15:10-15:25	499	The Role of Small Satellites in Monitoring Planetary Space Environments	Khurram Khurshid	Small Satellite Technology & Research Lab, NCGSA
3:25-4:00 Tea Break					
6	16:00-16:25	467	**Invited:** Mars2020 mission overview and main results from SuperCam instrument	Agnes Cousin	IRAP, Toulouse, France
7	16:25-16:50	601	**Invited:** Evidence for abiotic carbon cycling in two Martian meteorites suggest prebiotic reactions on ancient Mars	Dominic Papineau	Institute for Deep-Sea Science and Engineering, CAS
8	16:50-17:05	521	Radar Observation of the Lava Tubes on Mars and the Moon	Chunyu Ding	Shenzhen University
9	17:05-17:20	616*	Chemical compositions and aqueous alteration of the Vastitas Borealis Formation at the Tianwen-1 landing site	Changqing Liu	Shandong University

* marked presentation participate in the best presentation award.

T2: Mars and Inner Planets

April 11th 2025 08:30-12:05
Venue: Steigenberger Icons F1 Huangshan Room
Chair: Mikhail Dobynde, Siteng Fan

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:55	457	**Invited:** Results from the Emirates Mars Mission: The Big Picture at the Red Planet	Siteng Fan	Southern University of Science and Technology
2	08:55-09:10	641*	Refining Threshold Friction Velocity and Sublimation-Driven Dust Dynamics on Mars	Weiwei Hu	Lanzhou University
3	09:10-09:25	644*	A Numerical Simulation Study on the 3D Evolution of Sand Ripples on the Martian Surface	Xiangkuan Meng	Lanzhou University
4	09:25-09:40	604*	The 2022 February 15 Solar Energetic Particle Event at Mars: A Synergistic Study Combining Multiple Radiation Detectors on the Surface and in Orbit of Mars With Models	Jian Zhang	University of Science and Technology of China
5	09:40-09:55	528*	Simulation of Radiation on Martian Surface	Yuxing Ji	University of Science and Technology of China
9:55-10:30 Tea Break					
6	10:30-10:55	629	**Invited:** Study the interplanetary space radiation induced by galactic cosmic rays	Xi Luo	Shandong Institute of Advanced Technology
7	10:55-11:10	482	Understanding Space Radiation Dose for Astronauts in Interplanetary Missions	Mikhail Dobynde	University of Science and Technology of China
8	11:10-11:25	583*	The Radiation Impact of Solar Energetic Particle Events on the Moon: A Statistical Study Using Data-Based Modeling Results	Bailiang Liu	University of Science and Technology of China
9	11:25-11:40	18*	The impact of space radiation on brains of future Martian and Lunar explorers	Yuncong Li	University of Science and Technology of China
10	11:40-12:05	493	**Invited:** Some elements to understand the deep atmosphere of Venus	Sebastien Lebonnois	Laboratoire de Meteorologie Dynamique

* marked presentation participate in the best presentation award.

T3: Giant Planet Systems

April 8th 2025 14:00-17:30
Venue: Steigenberger Icons F1 Huangshan Room
Chair: Jihua Hao, Michel Blanc

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:30	462	**Invited:** Equatorial eastward jet in Jupiter's atmosphere reveal the signatures of the deep helium rain layer	Dali Kong	Shanghai Astronomical Observatory, Chinese Academy of Sciences
2	14:30-15:00		**Invited:** Momentum and energy transfer processes in the Jupiter system	Michel Blanc	IRAP, Toulouse, France
3	15:00-15:15	543	Whistler-mode Waves in Jupiter's and Saturn's Magnetosphere and Their Effects On the Dynamics of Energetic Electrons	Dedong Wang	Helmholtz Center for Geosciences/Nagoya University
4	15:15-15:30	530	Radiation hydrodynamic models of circumplanetary disks	Zhuo Chen	Tsinghua University
15:30-16:00 Tea Break					
5	16:00-16:30	465	**Invited:** Numerical Simulations of Magnetic Effects on Zonal Flows in Giant Planets	Yufeng Lin	Southern University of Science and Technology
6	16:30-17:00	196	**Invited:** Dynamic habitability of icy moons	Jihua Hao	University of Science and Technology of China
7	17:00-17:15		Structure and Dynamics of the Jovian Magnetodisk seen by Juno	Zhi-Yang Liu	IRAP, France
8	17:15-17:30	508	Investigating Titan's Atmospheric Chemistry Using Pulsed Discharge and Synchrotron Radiation Photoionization Mass Spectrometry	Haixin Li	University of Science and Technology of China

* marked presentation participate in the best presentation award.

T3: Giant Planet Systems

April 9th 2025 08:30-12:00
Venue: Steigenberger Icons F1 Huangshan Room
Chair: Zhonghua Yao, Chao He

No.	Time	ID	Title	Name	Affiliation
1	08:30-09:00	510 Online	**Invited:** Energy and mass transport in the Jupiter system probed with space telescopes and laboratory experiments	Tomoki Kimura	Tokyo University of Science, Japan
2	09:00-09:30	620 Online	**Invited:** Stable Layers as a Catalyst for Dipolar-Dominated Magnetic Fields in Gas Giants	Chi Yan	University of Texas at Austin
3	09:30-09:50	560*	An extremely low-density exoplanet spins slow	Quanyi Liu	Tsinghua University
9:50-10:30 Tea Break					
4	10:30-11:00	512	**Invited:** New understandings on the magnetospheric structure and future perspectives	Zhonghua Yao	The University of Hong Kong
5	11:00-11:20	270	Long-term Enhancing of Jupiter's Electrostatic Waves as Diagnostic of Io's Mass Loading Activity	Minyi Long	Wuhan University
6	11:20-11:40		RCM simulations of Io torus coupling the magnetosphere	Yuxian Wang	IRAP, Toulouse, France
7	11:40-12:00	534*	Jupiter's Stratospheric Planetary Waves and its Long-term Variation	Jialin Zhang	University of Science and Technology of China

* marked presentation participate in the best presentation award.

T4: Asteroids and Early Solar System

April 10th 2025 08:30-11:45
Venue: Steigenberger Icons F1 Chaohu Room
Chair: Liangliang Yu, Zhengbin Deng

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:45	625 Online	Sorting process during accretion of ordinary chondrite parent bodies	Ziliang Jin	Macau University of Science and Technology
2	08:45-09:15	636	**Invited:** A shape index of Yarkovsky effect on irregularly shaped asteroids	Liyong Zhou	Nanjing University
3	09:15-09:45	476	**Invited:** Early Solar System Giant Planet Instability Triggered by Gas Disk Dispersal	Beibei Liu	Zhejiang University
4	09:45-10:00	468	Modelling Intrusion Resistance of Regolith Grains on Small Bodies Based on Terradynamics	Yixuan Li	Harbin Institute of Technology
10:00-10:30 Tea Break					
5	10:30-10:45	444	Main Belt Comets: one of the primary sources of Earth's water?	Liang-Liang Yu	Nanjing University
6	10:45-11:15	539	**Invited:** Meteorites-asteroid connection and some lessons from returned samples	Pierre Beck	Institute for Planetary Sciences and Astrophysics, Grenoble
7	11:15-11:30	537*	Implications from Matrix Chemical Composition on Chondrule-Matrix Complementarity in Carbonaceous Chondrites	Yuanyuan Tian	University of Science and Technology of China
8	11:30-11:45	469	Internal isotopic structure of Ryugu suggests it derives from Ivuna-like parent body	Ke Zhu	China University of Geosciences, Wuhan

* marked presentation participate in the best presentation award.

T4: Asteroids and Early Solar System

April 10th 2025 14:00-17:15
Venue: Steigenberger Icons F1 Chaohu Room
Chair: Frédéric Moynier, Zhengbin Deng

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:15	479	Microgravity can Alter Crystallization Product in Silicate melt of the Early Solar System	Haolan Tang	University of Science and Technology of China
2	14:15-14:45	571	**Invited:** Composition, Structure and Origin of the Moon	Paolo Sossi	ETH Zürich
3	14:45-15:00	589	Super-Heated Core: A New Constraint on Lunar Formation Models?	You Zhou	Chengdu University of Technology
4	15:00-15:15	483	Impact-controlling Chang'E-6 regolith formation on the Moon's far-side	Jinting Kang	USTC
15:15-16:00 Tea Break					
5	16:00-16:30	592	**Invited:** Accretion of volatile elements on Earth without late veneer	Julien Siebert	IPGP/Université Paris Cité
6	16:30-16:45	472	Using mercury isotopes to study planetary volatile loss	Frederic Moynier	Université Paris Cité, Institut de Physique du Globe de Paris
7	16:45-17:15	500	**Invited:** Isotopes of volatile elements reveal the origin and evolution of Earth's volatiles	Wenzhong Wang	University of Science and Technology of China

* marked presentation participate in the best presentation award.

T5: Exoplanets

April 8th 2025 14:00-17:25
Venue: Steigenberger Icons F1 Chaohu Room
Chair: Fei Yan, Guo Chen

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:20	573	**Invited:** Closeby Habitable Exoplanet Survey (CHES): An Astrometric Mission to Explore Nearby Habitable Worlds	Jianghui Ji	Purple Mountain Observatory, Chinese Academy of Sciences
2	14:20-14:40	639	**Invited:** MEAYIN Mission——Space Infrared Observatory in the Post-JWST Era	Jilin Zhou	Nanjing University
3	14:40-14:55	513*	THIRSTEE: testing the water world hypothesis on the small transiting exoplanet population	Gaia Lacedelli	Instituto de Astrofísica de Canarias (IAC)
4	14:55-15:10	553	Exoplanet multiplicity from a joint analysis of multiple radial velocity surveys	Wei Zhu	Tsinghua University
5	15:10-15:25	509	Validation of Habitable-Zone Planet Candidates Using Multi-Color Photometry with GTC/HiPERCAM	Chengzi Jiang	Instituto de Astrofísica de Canarias
15:25-16:00 Tea Break					
6	16:00-16:20	593 Online	**Invited:** The Characterising Exoplanet Satellite (CHEOPS)	David Ehrenreich	University of Geneva
7	16:20-16:40	38	**Invited:** Tianlin: a 6+ meter Space Telescope for Habitable Worlds and Extraterrestrial Lifes	Wei Wang	NAOC
8	16:40-16:55	446	Cloud and chemical mixing influenced by planetary rotation of brown dwarfs and isolated giant planets	Xianyu Tan	Shanghai Jiao Tong University
9	16:55-17:10	451	Revealing Winds and Chemical Inhomogeneities in Exoplanet Atmospheres with High-Resolution Spectroscopy	David Cont	University Observatory / Ludwig Maximilian University Munich
10	17:10-17:25	90	Investigation of the Multidimensional Atmospheric Structure of Ultra-Hot Jupiters in the JWST and Ground-Based High-Resolution Infrared Spectroscopy Era	Yuanheng Yang	PMO

* marked presentation participate in the best presentation award.

T5: Exoplanets

April 9th 2025 08:30-11:55
Venue: Steigenberger Icons F1 Chaohu Room
Chair: Jiwei Xie, David Cont

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:50	623	**Invited:** From Planetesimals to Dwarf Planets by Pebble Accretion	Chris Ormel	Tsinghua University
2	08:50-09:10	596	**Invited:** Inferring planets forming in protoplanetary disks from observations	Ruobing Dong	Peking University
3	09:10-09:25	529*	Age Dependence of the Occurrence and Architecture of Ultra-Short-Period Planet Systems	Pei-Wei Tu	Nanjing University
4	09:25-09:40	622*	Suppression of giant planet formation around low-mass stars in clustered environments	Shuo Huang	Tsinghua Univ.
5	09:40-09:55	588	On the Lithium Signatures Following Planet Engulfment by Stars	Qinghui Sun	Tsung-Dao Lee Institute at Shanghai Jiao Tong University
9:55-10:30 Tea Break					
6	10:30-10:50	557	**Invited:** The Earth 2.0 (ET) Space Mission	Jian Ge	Shanghai Astronomical Observatory, Chinese Academy of Sciences
7	10:50-11:10	545	**Invited:** Forming rocky worlds: Devolatilization matters	Haiyang Wang	University of Copenhagen
8	11:10-11:25	523*	Strong tidal dissipation of super-Earth triggered by the weak terrestrial mantle	Bowen Chen	University of Science and Technology of China
9	11:25-11:40	535*	An extremely low-density exoplanet spins slow	Quanyi Liu	Department of Astronomy, Tsinghua University
10	11:40-11:55	611*	Are AU Mic b and c on mutually inclined orbits?	Zitao Lin	Department of Astronomy, Tsinghua University

* marked presentation participate in the best presentation award.

T6: Space Astronomy

April 9th 2025 08:30-12:30
Venue: Steigenberger Icons F1 Huaihe Room
Chair:

No.	Time	ID	Title	Name	Affiliation
1	08:30-09:00	477	**Invited:** The Einstein Probe Mission	Chichuan Jin	National Astronomical Observatories (NAOC)
2	09:00-09:30	551	**Invited:** Direct measurements of cosmic ray spectra with DAMPE and the implications	Qiang Yuan	Purple Mountain Observatory, Chinese Academy of Sciences
3	09:30-10:00	478	**Invited:** EXTP mission	Mingyu Ge	Institute of High Energy Physics, Chinese Academy of Sciences
4	10:00-10:25		MeGAT mission	Zhiyong Zhang	University of Science and Technology of China
10:25-10:40 Tea Break					
5	10:40-11:00	643	The Very Large Area gamma-ray Space Telescope	Xiang Li	Purple Mountain Observatory, Chinese Academy of Sciences
6	11:00-11:20	646	The New Deployment Plan for the Chasing All Transients Constellation Hunters (CATCH) Space Mission	Qian-Qing Yin	Institute of High Energy Physics, Chinese Academy of Sciences
7	11:20-11:40		MeV line emissions from nuclear synthesis	Yanwen Deng	Institute of High Energy Physics, Chinese Academy of Sciences
8	11:40-12:00		From HXMT to CATCH: Detector Technological Advancements in High-Energy Astronomy	Zhengwei Li	Institute of High Energy Physics, Chinese Academy of Sciences
9	12:00-12:30		**Invited:** Science in MeV band	Felix Aharonian	The Dublin Institute for Advanced Studies (DIAS)

* marked presentation participate in the best presentation award.

T7: Extraterrestrial Resources and Moon Station

April 10th 2025 14:00-17:40
Venue: Steigenberger Icons F1 Jiuhuashan Room
Chair:

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:25	621*	**Invited:** Drillability Assessment of Martian Weathered Rocks Integrating Generative AI and Geological Knowledge	Xuhai Tang	Wuhan University
2	14:25-14:40	544*	In-situ Construction for Lunar Research Station	Yuyue Gao	Huazhong University of Science and Technology
3	14:40-14:55	567	High Temperature Materials Equipment in Chinese Space Station and on the Future Moon Station	Xuechao Liu	Shanghai Institute of Ceramics, Chinese Academy of Sciences
4	14:55-15:10	587	Homogeneity evaluation of sintered lunar regolith samples using CT histogram	Li Zhuang	Chongqing University
5	15:10-15:25	459	**Invited:** Enhanced Algorithms for Three-Dimensional Morphological Analysis of Chang'e-5 Lunar Soil Using Deep Learning-Automated Segmentation on High-Resolution CT	Siqi Zhou, Feng Li	Beihang University
3:25-4:00 Tea Break					
6	16:00-16:25	447*	**Invited:** Micro-CT characterization of the Chang'e-5 lunar regolith samples	Qi Zhao	The Hong Kong Polytechnic University
7	16:25-16:40	607*	Study on preparation and properties of graphene oxide and nano-SiO2 reinforced lunar regolith simulant geopolymer	Bo-bo Zhang	Anhui University of Science and Technology
8	16:40-16:55	619*	Design of Lunar Microgrids: Current Technological Feasibility and System Architecture Considerations	Fan Jian	Xi'an Jiaotong University
9	16:55-17:10	532*	Response of Synthetic Bacterial Communities to Space Environments and Exploration of Biofilm Formation Mechanisms under Variable Gravity	Yueying Lu	Beihang University
10	17:10-17:25	480	Deployment and Performance Analysis of ICUBE-Q on the Chang'e 6 Lunar Mission	Rehan Mahmood	Small Satellite Technology & Research Lab, NCGSA
11	17:25-17:40	501	Gravity Gradient Stabilization of Tethered PocketQube Satellites in Lunar Orbit	Daniyal Husnnain	IST

* marked presentation participate in the best presentation award.

S1: Apophis 2029

April 10th 2025 08:30-12:00
Venue: Steigenberger Icons F1 Huaihe Room
Chair: Yang Yu, Jian-Yang Li

No.	Time	ID	Title	Name	Affiliation
1	08:30-08:45	615	Apophis 2029: A Rare Opportunity for Planetary Science and Planetary Defense	Jian-Yang Li	Sun Yat-sen University
2	08:45-09:00	624	Exploring (99942) Apophis in 2029 with a Swarm of CubeSats: A Multi-Flyby Mission Concept	Yang Yu	Beihang University
3	09:00-09:25	572	**Invited:** Beyond the Threat: A Multidisciplinary Exploration of Asteroid Apophis for Science and Cosmic Hazard Mitigation	Jianghui Ji	Purple Mountain Observatory, Chinese Academy of Sciences
4	09:25-09:40	506	A CubeSat Swarm Mission to Observe Apophis During Its 2029 Flyby	Maaheen Rehan	IST
5	09:40-10:05	522	**Invited:** Ground-based Radar Observations of Apophis: Concept and Prospect	Zehua Dong	Beijing Institute of Technology
10:20-11:00 Tea Break					
7	11:00-12:00	Online	International Dialogue on Scientific Collaboration and Exploration for Apophis 2029	Jian-Yang Li	Sun Yat-sen University

* marked presentation participate in the best presentation award.

S1: Apophis 2029

April 10th 2025 14:00-15:35
Venue: Steigenberger Icons F1 Huaihe Room
Chair: Xian Shi

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:15	515	Orbit improvement and determination of Yarkovsky effect for Asteroid (99942) Apophis	Wei Tian	Shanghai Astronomical Observatory
2	14:15-14:40	519	**Invited:** A Review about our Current Knowledge of the Population of Asteroids and Physical Properties	Jean-Pierre Barriot	LIESMARS laboratory, U. of Wuhan
3	14:40-14:55	450	How many NEAs larger than Apophis are there? A critical revision of different estimates	Gonzalo Tancredi	Depto. Astronomia, Udelar, Uruguay
4	14:55-15:20	562	**Invited:** Research Progress on New Concept Planetary Defense Technologies	Mingtao Li	National Space Science Center, Chinese Academy of Sciences
5	15:20-15:35	602*	Deep operator neural network applied to efficient computation of asteroid surface temperature and application to Apophis	Shunjing Zhao	Nanjing University

* marked presentation participate in the best presentation award.

S2: Landing Site Selection for Mars Sample Return

April 8th 2025 14:00-17:30
Venue: Steigenberger Icons F1 Huaihe Room
Chair: Yang Liu, Lu Pan, Yiliang Li

No.	Time	ID	Title	Name	Affiliation
1	14:00-14:15	608	Mineral biosignatures on Mars	Yiliang Li	The University of Hong Kong & Deep Space Exploration Laboratory
2	14:15-14:30	547	Establishment of Safety Evaluation Factors for Dust Storms in the Landing Area Selection for Tianwen-3 Mission	Bo Li	Shandong University
3	14:30-14:45	598	Pitted Cones On Mars: Insights into Ancient Oceans, Subsurface Processes, and Potential Habitability	Le Wang	China University of Geosciences (Wuhan)
4	14:45-15:00	505	AI-Assisted Landing Site Selection for Future Mars Sample Return Missions	Maaheen Rehan	IST
15:00-15:30 Tea Break					
5	15:30-16:00	595 Online	**Invited:** Early Mars samples collected by the Perseverance rover from the Mars 2020 mission	Lucia Mandon	Institute for Planetary Sciences and Astrophysics, Grenoble
6	16:00-16:15	609	Gypsum Ridges as Conduits for Deep Methane Emission in an Evaporite Basin–Insights into the Origin of Atmospheric Methane	Yiliang Li	The University of Hong Kong & Deep Space Exploration Laboratory
7	16:15-16:30	626*	A study of in situ planetary water exploration based on active neutron interrogation	Yichao Wang	University of Science and Technology of China
8	16:30-17:30		General Discussion	Yiliang Li	The University of Hong Kong & Deep Space Exploration Laboratory

* marked presentation participate in the best presentation award.

Poster Presentation

No.	ID	Title	Name	Affiliation	Session
1	533*	The characteristics of SEP Events and their solar sources over four solar cycles	Zhendi Huang	University of Science and Technology of China	**T1**
2	555	Simmultaneous Longitudinal and Transverse Oscillations Induced by an Extreme-ultraviolet	Bingbing Chang	University of Science and Technology of China	**T1**
3	561	Modelling the angular response of EPD/EPT and its application to the full inversion of Helios Events	Daniel Pacheco	University of Science and Technology of China	**T1**
4	617	Studying the evolution of ICMEs in the heliosphere through multipoint observations	Zhiyong Zhang	University of Science and Technology of China	**T1**
5	475	Monte Carlo Simulation of the Scattering Coefficient of Solar Radio Emission	Jiazhen Gan	University of Science and Technology of China	**T1**
6	496*	Predicting the Energy Spectra of Solar Energetic Particles with a Machine Learning Regression Algorithm	Jiajun Liu	University of Science and Technology of China	**T1**
7	497*	Solar Energetic Particles Propagation under 3D Corotating Interaction Regions with Different Characteristic Parameters	Yuji Zhu	Shandong Institute of Advanced Technology	**T1**
8	582*	Untangling the drivers of disturbance storm time (Dst) index using information theoretical approach	Geletaw B.	Bahir Dar University	**T1**
9	637*	Automatic Identification of Interplanetary Shocks Based on Machine Learning	Yi Tan	Macau university of science and technology	**T1**
10	638	Analysis of the compositional signatures of the slow solar wind during 2000 and 2008 years	Mirabbos Mirkamalov	University of Science and Technology of China/ Samarkand State University	**T1**
11	526*	Statistical Distribution of Magnetosonic Waves in the Martian Space	Shuyue Pang	Wuhan University	**T2**
12	584*	Direct Observations of the Rapid Response of the Mars' Induced Magnetosphere to an Interplanetary Magnetic Field Rotation	Rentong Lin	Wuhan University	**T2**

No.	ID	Title	Name	Affiliation	Session
13	548	Detectablity of Water Vapor on Terrestrial Exoplanets around GK stars via transmission spectroscopy with Tianlin	Meng Zhai	National Astronomical Observatories, CAS	**T5**
14	633*	Atmosphere of ultra-hot Neptune LTT 9779 b	Shuo Liu	University of Science and Technology of China	**T5**
15	632*	Atmospheric Metal Detection and Abundance Analysis in Ultra-hot Jupiter HAT-P-70b	Boyue Guo	University of Science and Technology of China	**T5**
16	524	Readout Electronics for a Prototype TPC-based MeV Gamma-ray Telescope in Space	Maoyuan Zhao	University of Science and Technology of China,	**T6**
17	552	Readout Electronics for Pixelated CdZnTe Detectors in MeGaT	Zhengguang Yang	University of Science and Technology of China.	**T6**
18	481	Autonomous Fault Detection in CubeSat Networks: A Machine Learning Approach	Khurram Khurshid	Small Satellite Technology & Research Lab, NCGSA	**T6**
19	498	Starlink-Based Communication for CubeSat Missions: Enhancing Continuous Access	Rehan Mahmood	Small Satellite Technology & Research Lab, NCGSA	**T6**
20	502	AI-Driven Predictive Maintenance for Long-Duration CubeSat Missions	Rehan Mahmood	IST	**T6**
21	503	A New Approach to Power and Thermal Management in Deep-Space CubeSat Missions	Rehan Mahmood	IST	**T6**
22	570	The Ejecta Evolution of the DART Event: Reproducing Linear Features and Double Trails	Zhijun Song	Beihang University	**S1**
23	586	On Identification Method of Neutron Activation Gamma Spectroscopy in Shallow Water Exploration of Planets	Yuxi Xie	Hengyang Normal University/University of Science and Technology of China	**S2**

* marked presentation participate in the best presentation award.

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