

ICAPE 2025

2025年第一届航空航天推进工程国际会议

2025 1st International Conference on Aerospace Propulsion Engineering

2025年12月12-15日 | 中国·北京

Conference Program

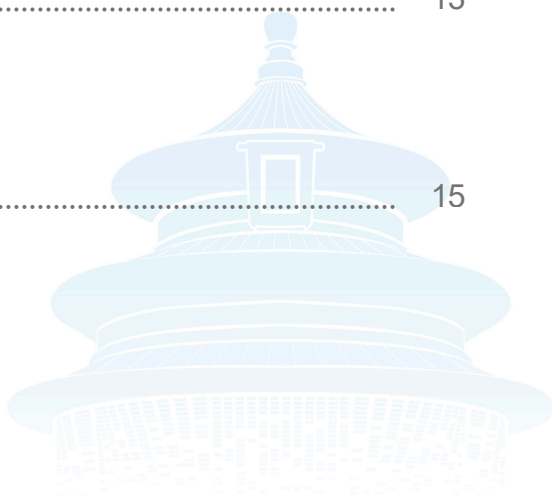


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及照片直播



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Welcome Message



Guozhu Liang
Beihang University, China
Conference Chair



Zhanxue Wang
Northwestern Polytechnical University, China
Conference Chair

Dear Distinguished Participants,

On behalf of the Organizing Committee, it is with great pleasure and excitement that we extend a warm welcome to you at the 2025 1st International Conference on Aerospace Propulsion Engineering (ICAPE 2025), held from December 12 to 15, 2025, in the vibrant and historic city of Beijing, China.

In an era of rapid advancements in aerospace technology, ICAPE 2025 aims to provide a platform for leading scholars, researchers, engineers, and industry professionals worldwide to engage in in-depth discussions on the latest innovations, practical challenges, and future directions in aerospace propulsion engineering.

We sincerely appreciate your valuable involvement. Your attendance, groundbreaking research, and shared knowledge are crucial to the conference's goal of promoting innovative ideas and establishing global partnerships that will drive progress in the field.

We are particularly proud to introduce an exceptional lineup of plenary speakers, featuring Prof. Xu Xu, Prof. Adrian Olaru, Prof. Hong Xiao, Dr. Florin Mingireanu, Assoc. Prof. Alexander Molokanov, Prof. Min Yi, and Dr. Andrey Aksenov. They will present their innovative research and forward-thinking perspectives, aiming to inspire everyone attending and stimulate engaging conversations about the latest advancements in propulsion technology.

We wish you a rewarding and enjoyable experience at ICAPE 2025, filled with meaningful academic exchanges, valuable collaborations, and an unforgettable visit to the remarkable city of Beijing.

We look forward to engaging with you throughout the conference to inspire new breakthroughs and to forge collaborations that will propel the field of aerospace propulsion engineering forward.

Sincerely,
ICAPE 2025
Conference Committee

Organizing Committee

International Advisory Committee

Guobiao Cai — Beihang University, China
Xiufeng Hou — China Aerospace Foundation, China
Adrian Olaru — University Association for Science and Technology of Romania, Romania

Conference Chairs

Guozhu Liang — Beihang University, China
Zhanxue Wang — Northwestern Polytechnical University, China

Conference Co-Chairs

Weizong Wang — Beihang University, China
Wenhui Ling — China Aerospace Propulsion Technology Information Society, China
Sergey Timushev — Moscow Aviation Institute, Russia

Academic Committee

Weixing Zhou — Harbin Institute of Technology, China
Ge Wang — Harbin Engineering University, China
Jianping Wang — Peking University, China
Qunli Zhao — Aviation Industry Development Research Center of China, China
Jun Chen — Beijing Institute of Control Engineering, China
Yao Zheng — Zhejiang University, China

Program Chairs

Yang Chen — Beihang University, China
Wen Ao — Northwestern Polytechnical University, China
Xiaoyan Tong — Beihang University, China
Shijie Liu — Beijing Aerospace Propulsion Institute, China
Fushou Xie — Xi'an Jiaotong University, China

Publication Chairs

Yunqin He — Beihang University, China
Yafeng Zhang — Journal of Propulsion Technology, China

Publicity Chairs

Hongjie Guo — Beihang University, China
Lihui Zhang — Beihang University, China

Finance Chair

Jiawen Li — Beihang University, China

Local Chair

Nanjia Yu — Beihang University, China

Session Chairs

Yong Tang — Beijing Institute of Technology, China
Xinyan Li — Beijing Institute of Technology, China
Xiaojuan Zhao — Beijing Institute of Technology, China
Yuntao Guo — Beijing Institute of Technology, China
Shilong Zhao — Sun Yat-sen University, China

Beihang at a Glance

Beihang University is a prestigious higher education institution with a long history. Founded on October 25, 1952 under the name of Beijing Institute of Aeronautics, it originated from the merger of the aeronautical departments of Beijing Institute of Technology, Tsinghua University, and Sichuan University. In 1988, it was renamed Beijing University of Aeronautics and Astronautics (BUAA). In 2002, the university changed its English name to Beihang University.

As the first institution of higher education in aeronautics and astronautics established after the founding of the People's Republic of China in 1949, Beihang University has always inherited its revolutionary origins, taking serving the nation as its highest pursuit. It is dedicated to nurturing top-notch talent, building advanced equipment, and continuously forging ahead at the forefront of China's higher education. A total of 100 academicians of the Chinese Academy of Sciences and Chinese Academy of Engineering, along with over 270,000 outstanding contributors, have emerged from here. They have showcased the spirit of "Integrating Virtue with Brilliance and Combining Knowledge with Practice," and filled numerous domestic gaps by successfully developing and launching various types of aircraft.

Beihang University is currently under the administration of the Ministry of Industry and Information Technology. It has Xueyuan Road campus and Shahe campus in Beijing, as well as a newly-opened International Campus in Hangzhou, with the total area reaching approximately 4,000 mu. Since its establishment, Beihang University has always been an important institution in China. It was one of the first 16 key universities in the country and one of the first 22 universities to establish a graduate school after the restoration of the degree system in the 1980s. In 1995, it was enrolled into the "211 Project," and in 2001, it became part of the "985 Project." In 2017, it was selected to build a national "Double First-Class" university. The 16th Party Congress of the university set forth the vision of building a world-class university rooted in China.



Conference Venue & Sign-in Details

Important Notice | 重要提示

Please be aware that the Sign-in (Registration) venue and the Conference venue are situated at separate places.

请您注意：会议签到地点与正式会议地点位于两个不同场所，请根据您的行程妥善安排。

Sign-in (Registration) | 会议签到

- **Date:** Friday, December 12, 2025
- **Venue:** Vision Plaza Shahe International Cultural Exchange Center, lobby on the first floor
- **Address:** No. 9 Courtyard, South 3rd Street, Gaojiao Park, Changping District, Beijing, China
- **Time:** 10:00-18:00 (Beijing Time, UTC+8)
- **日期:** 2025年12月12日 (星期五)
- **地点:** 沙河唯实国际文化交流中心，一楼大堂
- **地址:** 北京市昌平区高教园南三街9号院
- **时间:** 10:00-18:00 (北京时间)

Conference Days | 正式会议

- **Date:** Saturday - Sunday, December 13 - 14, 2025
- **Venue:** Beihang University (Shahe Campus), Library, the First Lecture Hall
- **Address:** No.9 Gaojiaoyuan South 3 Street, Changping District, Beijing, China
- **Time:** December 13, 2025: 08:30–18:00 (Beijing Time, UTC+8)
December 14, 2025: 08:30–18:00 (Beijing Time, UTC+8)
- **日期:** 2025年12月13日至14日 (星期六至星期日)
- **地点:** 北京航空航天大学沙河校区，图书馆，第一报告厅
- **地址:** 北京市昌平区高教园南三街9号
- **时间:** 12月13日会议时间：08:30–18:00
12月14日会议时间：08:30–18:00

To the Venue | 前往会场

The venue is a 10-minute walk (approx. 600 meters) from the recommended hotel. Attendees are encouraged to stay at the designated hotel for check-in to facilitate conference participation.

签到酒店至会场距离约600米，步行约10分钟即可到达。建议参会嘉宾入住签到酒店，便于参会。



- 05



Accommodation

Hotel Recommendation | 住宿预定推荐

Hotel: Vision Plaza Shahe International Cultural Exchange Center

Address: No. 9 Courtyard, South 3rd Street, Gaojiao Park, Changping District, Beijing, China

会议合作酒店: 沙河唯实国际文化交流中心

地址: 北京市昌平区高教园南三街9号院

Room Options | 可选房型

- ☒ **Apartment Single Room / Twin Room** — ¥480 per night (including breakfast for two)
- ☒ **Deluxe Single Room / Twin Room** — ¥550 per night (including breakfast for two)

*** Reservation**

Tel: +86 13552286772 (Manager Wang)

Please mention: "ICAPE 2025" when booking.

- ☒ 公寓单人房/双床房, 价格: 480 元/晚 (含双早)
- ☒ 豪华单人房/双床房, 价格: 550 元/晚 (含双早)

*** 预订方式**

电话: 13552286772 (王经理)

预订时请说明: 参加 ICAPE 2025 会议。





General Information

FRIDAY, DEC. 12, 2025

2025年12月12日（星期五）

REGISTRATION DAY 签到日

Registration Notice | 签到须知

- **Registration Desk:** The lobby of Vision Plaza Shahe International Cultural Exchange Center → Inform the staff of your paper ID → Sign-in → Claim your conference kits.
- **签到 & 注册:** 各位与会者，签到处位于沙河唯实国际文化交流中心，一楼大堂。请您抵达后，向现场工作人员告知论文编号，完成签到登记或注册缴费，即可领取会议资料包。

SATURDAY TO SUNDAY, DEC. 13-14, 2025

2025年12月13-14日（星期六-星期天）

CONFERENCE DAY 会议日

Conference Preparation | 会前需知

1. **Admission Notice:** The morning session begins at **08:30** AM, and the afternoon session starts at **2:00** PM. Please arrive 5 to 10 minutes early. If you arrive late, quietly take a seat nearby to avoid interrupting the speaker or other participants.
 2. **Name Badge Usage:** Your badge is an important form of identification during the conference. Please wear it visibly and correctly at all times to ensure staff can easily recognize and assist you.
 3. **Mobile Phone Settings:** Please switch your mobile phones to silent or vibrate mode before entering the venue.
 4. **Certificates of Participation:** A digital certificate of participation will be emailed to all registered attendees after the conference concludes.
 5. **Campus Entry Permit:** Since the conference venue is located on campus, all participants must present valid campus entry credentials upon arrival. Please remember to bring your ID card or passport to facilitate entry to the venue.
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1. **入场提示:** 正式会议将于每日上午 **08:30** 准时开始，下午将于 **14:00** 准时开始。请提前 5 - 10 分钟进入会场。若您迟到，请就近轻声就座，避免干扰演讲者及其他参会人员。
 2. **胸牌佩戴:** 会议期间，胸牌是您身份的标识，请务必全程佩戴，以便工作人员识别和为您提供服务。
 3. **手机设置:** 请您在进入会场前，将手机调至静音或振动模式。
 4. **参会证书:** 会议结束后，我们会以电子邮件的形式向所有已注册的参会人员发送电子参会证书。
 5. **入校凭证:** 会议场地位于校内，参会人员入场时需核验入校凭证。请务必提前准备好身份证或护照，并于当日随身携带，以便顺利进入会场。

Presentations | 报告安排

Keynote Speech: 40mins, including Q&A.

Oral Presenters: 15mins, including Q&A.

Poster Presenters: Poster size (A1) - 594mm×841mm.

* Posters will be displayed during the session on December 13-14.

主旨演讲: 每位40分钟 (含问答)。

口头报告: 每位15分钟 (含问答)。

海报展示: 海报尺寸为A1 (594mm×841mm), 海报展示时间为12月13日至14日。

Device Provided | 设备提供

All presentation rooms are equipped with a screen, an LCD projector, and a laptop computer installed with Microsoft PowerPoint. (* We recommend you bring two copies of the file in case one fails.)

会场设有高清屏幕、先进的液晶投影仪, 以及预装最新版本Microsoft PowerPoint 软件的笔记本电脑, 确保您的演示能够流畅、清晰地呈现。(为保障演示过程的万无一失, 建议您提前准备两份演示文件副本。)

Dress Code | 着装建议

Dress Code: Business casual or formal.

着装建议: 商务休闲装、正装。

Important Note | 温馨提示

For your safety and security, please do not leave personal belongings unattended at any time. All attendees are responsible for their own items, including bags and laptops, when leaving any room. Please note that flammable, explosive, or other hazardous materials are strictly prohibited on the premises.

为保障您的安全与财物安全, 请在任何时候都不要让个人物品处于无人看管状态。参会人员离开任何房间时, 均需自行妥善保管好个人物品, 包括背包、笔记本电脑等。此外, 请注意: 场地内严禁携带易燃、易爆或其他危险物品。

Dining Instructions | 用餐须知

Conference includes coffee breaks, lunch and dinner during the conference days, beyond the fixed menu will be on personal bills.

主办方将在会议日为参会人员统一提供茶歇以及按照固定菜单安排的午餐与晚餐。若参会人员有超出上述统一安排的额外餐饮需求, 相关费用需由个人自行承担。

Dining Venue: Vision Plaza Shahe International Cultural Exchange Center

用餐地点 (会议日午餐及晚餐): 沙河唯实国际文化交流中心

Conference Schedule

详细日程

Day 1

December 13th, 2025 | Saturday | Morning Session

Venue: Beihang University (Shahe Campus), Library, the First Lecture Hall

OPENING CEREMONY		
08:30-08:40	Opening Address	
	Prof. Guozhu Liang (Beihang University, China) Prof. Weizong Wang (Beihang University, China)	
08:40-08:50	Group Photo	
KEYNOTE SPEECH		
08:50-09:30	Keynote Speaker I Prof. Xu Xu (Beihang University, China)	
	Speech Title: Working Mechanism and Experimental Verification of Mg Powder Enhanced Scramjet	
09:30-10:10	Keynote Speaker II Prof. Adrian Olaru (University Association for Science and Technology of Romania, Romania)	
	Speech Title: Dynamic modelling and simulation for control systems using the transfer multipol functions	
10:10-10:30	Coffee Break	
ORAL SESSION		
Timeline	Content	Paper ID
10:30–10:45	Paper Title: Study on the Optimization Design Method for Expander Cycle Liquid Rocket Engine Systems Presenter: Qianru Zhang	CP005
10:45–11:00	Paper Title: Feasibility study on the potential application of slush hydrogen as Cryogenic Propellants Presenter: Weiwu Peng	CP006

11:00–11:15	Paper Title: Nonlinear Dynamics and Bifurcation Induced Propellant Budgeting Uncertainty of Spacecraft Reaction Control Systems Presenter: Hao Gu	CP007
11:15–11:30	Paper Title: Data-driven Research on Dynamic Spray Characteristics of Bipropellant Injector in Pulse Mode Presenter: Zhen Zhang	CP012
11:30–11:45	Paper Title: Concept Design of a Micro-Scale Solid Propellant Divert and Attitude Control System Presenter: Yiyi Zhang	CP013
11:45–12:00	Paper Title: A Study on Dynamic Structural Characteristics of Combustor Flame Based on Proper Orthogonal Decomposition (POD) Presenter: Qingqing Dong	CP043
12:00–14:00	Lunch	

December 13th, 2025 | Saturday | Afternoon Session

Venue: Beihang University (Shahe Campus), Library, the First Lecture Hall

KEYNOTE SPEECH		
14:00–14:40	Keynote Speaker III Prof. Hong Xiao (Northwestern Polytechnical University, China) Speech Title: Artificial Intelligence and Digital Twin in Aircraft Engines	
14:40–15:20	Keynote Speaker IV Dr. Florin Mingireanu (European Space Agency, Romania) Speech Title: Deep-Throttle Control in a 6.5 kN-Class Hypergolic Engine and Its Role in Advancing 10 kN-Class Propulsion	

15:20–15:35	Paper Title: Experimental analysis of contact seal leakage in aircraft engine casings Presenter: Badykov Renat	CP015
15:35–15:50	Paper Title: Fault Identification Methods for the Main Bearings of Turbofan Engines Based on MSRCNN and SDP Presenter: Ao Xia	CP017
15:50–16:10	Coffee Break	
16:10–16:25	Paper Title: Flow investigation in centrifugal injector of a liquid rocket engine Presenter: Badykov Renat	CP018
16:25–16:40	Paper Title: Experimental Investigation on the Ignition of a Low-Cost, Green and Non-Toxic HAN-Based Thruster Presenter: Yu Liu	CP019
16:40–16:55	Paper Title: Elastoplastic Response of Rocket Engine Turbopump Main Bearings under Variable-Speed Operating Conditions Presenter: Tianhao Gao	CP020
16:55–17:10	Paper Title: Thrust Estimation for Aero-Engines Using a Bayesian-Optimized Long Short-Term Memory Neural Network Presenter: Yujie Zhang	CP021
17:10–17:25	Paper Title: Azimuthal oscillation of a low-power planar Hall thruster with krypton propellant and its influence on propulsion performance Presenter: Jiqin Wang	CP022
17:25–17:40	Paper Title: Experimental Study on the Effect of Aluminum Powder Drying on the Viscosity of Aluminum-Ice Propellant Slurry Presenter: Liwei Hou	CP025
17:40–17:55	Paper Title: Comparison of the effects of blade root slot and air-entraining jet on compressor cascade performance under the influence of interstage seal leakage Presenter: Shengyuan Wang	CP026
18:00–20:00	Dinner	

Conference Schedule

详细日程

Day 2

December 14th, 2025 | Sunday | Morning Session

Venue: Beihang University (Shahe Campus), Library, the First Lecture Hall


KEYNOTE SPEECH		
08:30–09:10	<p>Keynote Speaker V Assoc. Prof. Alexander Molokanov (Harbin Institute of Technology, China)</p> <p>Speech Title: Advancing Alternative Fuels: Innovations, Challenges, and Experimental Insights</p>	
09:10–09:50	<p>Keynote Speaker VI Prof. Min Yi (Nanjing University of Aeronautics and Astronautics, China)</p> <p>Speech Title: Fatigue Life Evaluation for Structures of Reusable Liquid Rocket Engine</p>	
09:50–10:10	Coffee Break	
ORAL SESSION		
Timeline	Content	Paper ID
10:10–10:25	<p>Paper Title: Development and Application of In-Situ Resource Utilization-Based Photocatalytic Water Splitting for Hydrogen-Oxygen Propulsion</p> <p>Presenter: Siying Wang</p>	CP014
10:25–10:40	<p>Paper Title: Research on the Correlation between Traveling Wave Resonance Stress and Noise of Aviation High-Speed Spiral Bevel Gears</p> <p>Presenter: Jianting Liu</p>	CP028

10:40–10:55	Paper Title: Characterization of Mixing Features of the Super- and Transcritical Jets Presenter: Ataallah Pourmahmoud	CP048
10:55–11:10	Paper Title: Low-cycle Fatigue Life Prediction of Turbine Disks based on the Equalized Timescale Method Presenter: Shiqin Hao	CP030
11:10–11:25	Paper Title: An investigation on inducer inner flow with adaptive cavitation model based on Omega vortex identification method Presenter: Yi An	CP032
11:25–11:40	Paper Title: Finite-element analysis of vibration fatigue life of Al-Li alloy rocket tank Presenter: Min Yi	CP038
11:40–11:55	Paper Title: A Full 3D Fluid-Thermal-Structural Coupling Analysis of Groove Designs for Hydrodynamic Seals Presenter: Shiqin Hao	CP039
11:55–12:10	Paper Title: Flow and Heat Transfer Characteristics of Helical Rib Regenerative Cooling Channels Based on Parametric Modeling Presenter: Jinyu Tong	CP040
12:10 -14:00	Lunch	

December 14th, 2025 | Sunday | Afternoon Session

Venue: Beihang University (Shahe Campus), Library, the First Lecture Hall

KEYNOTE SPEECH

14:00-14:40	Keynote Speaker VII Dr. Andrey Aksenov (TESIS Engineering Company, Russia) Speech Title: Using FlowVision Multiphysics CAE system for simulation of aerospace industrial tasks	
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ORAL SESSION		
Timeline	Content	Paper ID
14:40–14:55	Paper Title: Research on the application of spring-energized seal rings in liquid oxygen/methane engine Presenter: Ying Li	CP029
14:55–15:10	Paper Title: Investigation on Bolt Preload Evolution under the Transient Frictional Response of Contact Interfaces Presenter: Zhuojie Li	CP050
15:10–15:25	Paper Title: Load-Bearing Safety Analysis for a Five-Engine Parallel Liquid Rocket Thrust Frame Presenter: Jianning Gou	CP051
15:25–15:40	Paper Title: Research on On-orbit Refueling Residual Liquid Purge Technology Presenter: Qian Lin	CP052
15:40–16:00	Coffee Break	
16:00–16:15	Paper Title: The Application of Expert PID in the Variable Flow Rate Control of Hybrid Rocket Motors Presenter: Tan Guang	CP053
16:15–16:30	Paper Title: Investigation of Hybrid Rocket Motor Regression Rate Coupled with Gas-Phase Radiation Effects Presenter: Jingfei Gao	CP055
CLOSING CEREMONY		
16:30-17:00	Award Ceremony & Closing Address	
17:00-18:00	Visit Beijing Air and Space Museum (Shahe Campus)	
18:00-20:00	Dinner	

POSTER SESSION	
Paper Title	Paper ID
Research on Microwave Propulsion Control Method for Spacecraft Based on Multi-Unit Resonant Cavity	CP031

ICAPE 2025

2025年12月12-15日 | 中国·北京

主办单位：北京航空航天大学

承办单位：北京航空航天大学宇航学院

航天液体动力全国重点实验室

高效能空间推进技术北京市重点实验室

协办单位：中国航天基金会、航天三网

冲压发动机技术全国重点实验室

赞助单位：曙光智算

支持单位：CoreShare科享学术交流中心

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