



2024 INTERNATIONAL SYMPOSIUM
ON THE PEACEFUL USE OF
SPACE TECHNOLOGY – HEALTH
December 9 - 13, 2024
HAIKOU & HONG KONG, CHINA

Call for Papers

The IPSPACE Organizing Committee invites academicians to attend and speak at the IPSPACE 2024. Papers are solicited in the areas listed below for the 2024 International Symposium on the Peaceful Use of space technology - Health (IPSPACE 2024), co-hosted by the International Academy of Astronautics (IAA), the International Astronautical Federation (IAF), the Association of Space Explorers (ASE), Space Foundation, Rice University's Baker Institute's International Space Medicine Summit (RICE ISMS), the International Space University (ISU), the George H. W. Bush Foundation for U.S.-China Relations, hosted by the International Peace Alliance (Space) (IPA), the Chinese Society of Astronautics (CSA), China High-Tech Industrialization Association (CHIA), China Association for Remote Sensing Applications (CARSA), China Electronics Chamber of Commerce (CECC). IPSPACE is organized by the International Peace Alliance (Space) (IPA) and the State-Guest Entrepreneur Club (SGEC). Strategic partners are China Communications Industry Association, GNSS & LBS Association of China, and China Chamber of Commerce for Import and Export of Machinery and Electronic Products (CCCME).

Similarly, to what was done in the previous symposiums, the program will focus on global peace, collaboration, and innovation. IPSPACE will be an online and in-person hybrid event in multiple locations around the world.

A broad theme of IPSPACE 2024 is peaceful use of space technology on human health with the slogan "One Space, One Home" will gather scientists, entrepreneurs, educators, scholars, and professionals in health, spatial IT, education, finance, insurance, energy and more. On 3 December 2024 the opening Ceremony will be followed by a plenary session and 16 suggested breakout sessions. On 9 - 13 December 2024 topic areas for papers include:

Plenary Session

The Plenary Session discusses peaceful applications and conversion of space technologies, innovation, talents, and other topics.

Session: Spatial IT for a Shared Future

Chairs: Barbara Ryan, UK, and Zheng WEI, China

Mankind faces major challenges such as environmental degradation, climate change, food security and public security. This session is expected to enhance global communication and cooperation to promote and deepen the application of spatial IT in major fields like resource management, environmental monitoring, disaster prevention and mitigation, thus, to further promote the peaceful use of space science and technology and make benefits for the well-being of mankind.

Session: Space Power and Terrestrial Energy

Chairs: John C Mankins, USA, Baoyan Duan, China, and Cheng'yu Fu, China

It is crucial to identify research, develop and deploy affordable and sustainable new energy sources. This need is driven by a demand for energy to enable economic growth for a still-increasing global population. It is also driven by concerns regarding the long-term accumulation in Earth's atmosphere of fossil fuel-derived greenhouse gases, and the prospect that annual production of petroleum will begin to decline. The challenge to transition current terrestrial energy systems into more environmentally friendly, sustainable ones is engaged. The whole range of power generation, conversion and storage will be discussed as well as the prospects for using space-based power plants to provide energy remotely to the Earth.

Session: Space Technology and Human Health

Chairs: O. Orlov, Russia and Yulin Deng, China; Jichen Du, China

This session will explore the intersection between space technology and human health. Topics of interest include space medicine, biotechnology, and bioengineering, as well as the use of space technology to monitor and improve human health on Earth. Space extreme environment has applications for the benefit of human on Earth. Radiation environment and effects on physical and biological systems are also benefiting human on Earth in term of risk assessment and countermeasures.

Session: Space Education, Skills, and Talents

Chairs: L. Regel, USA and Xiaohui Li, China

This session will introduce programs and discuss space education from a K12 student's perspective. Experienced educators will share their insights on how to make space education attractive and inspirational. The session tries to focus on what can be done now to enhance the impact of space science and technology on STEAM education for the improvement of all societies and for the spread of mankind into the cosmos.

Session: Green Space Propulsion

Chairs: Joseph Cassady, USA and Riheng Zheng, China

This Session will introduce distinctive environmental challenges for sub-orbital, Earth to orbit and in-space propulsion; Greener space propulsion in chemical and non-chemical rocket, liquid, solid and hybrid rocket systems; Promising green space propellants for various space missions; Advanced green propulsion systems for ramjet, scramjet, air-breathing, nuclear, electric, solar, and other advanced rocket systems.

Session: Global Lunar Development

Chair: John C Mankins, USA, and Dr. PENG Jing, China

Plans Technologies and Systems

The Moon represents a tremendous resource for humanity in the 21st century and beyond – in terms of scientific discovery, *in situ* resource utilization, and commercial development. Construction and operations on the lunar surface and in lunar orbit will transform our future in cis-lunar space and on Earth. This session will consider prospective architecture for global lunar development, review current plans and programs (both government and commercial), as well as the emerging technologies that will make the use of the Moon for the benefit of humanity a reality.

Session: Moon Protection

Chairs: Claudio Maccone, Italy and Ji Wu, China

The Moon Farside is the only place free from radio transmissions and noises produced by ground-based and Earth-orbiting instruments. The spherical body of the Moon blocks them, acting like a shield. Thus the Legal Protection of the Moon Farside from all kinds of non-scientific future exploitations (real estate, Industry, and military) has long been a concern for many scientists. This session advocates the support to the Moon Farside Protection by all scientists including those working in the four different areas of science: Cosmology, Astrobiology, SETI, and Planetary Defense.

Session: Search for Extra-Terrestrial Intelligence (SETI)

Chairs: Vishal Gajjar, USA; Mike Garrett, UK; Kaichang Di, China

This session will focus on scientific, technical, and interdisciplinary aspects of the Search for Extra-Terrestrial Intelligence at international level and in Asia particularly. SETI researchers are typically looking for anomalies in astronomical data, potentially associated with other technical civilizations in the Milky Way and beyond. The search includes all parts of the electromagnetic spectrum and utilizes cutting-edge technologies deployed on some of the largest telescopes in the world. The interdisciplinary aspects of the topic involve the social and societal consequences of detecting a signal, engaging with a very wide variety of human cultural pursuits - including art, language, education, science, anthropology, sociology, psychology, legal, political and institutional issues, interactions with the media, public outreach and risk communication.

Session: Space Debris and Green Space

Chairs: Zizheng Gong, China and Pierre Omaly, France

With the rapid development of the human space activities, such as the increasing amount of space debris, the rapid deployment of low-orbit giant constellations, and the explosive growth of commercial space activities, the long-term sustainability of space is facing serious challenges. It is the consensus of the international community to share space monitoring data, carrying out active space debris removal, defense near-Earth asteroid impact, Initiation space governance action, this is the general trend of the times to build a community with a shared future in outer space. This session will focus on the orbital debris research activities and near-Earth asteroid defense, to foster collaborations with the international community, to promote space governance process. We will discuss how to improve the space environment and create a green space.

Session: Space Traffic Management and Green Space

Chairs: Corinne Jorgenson, USA, and Xiaoyu Zhu, China

The session will be devoted to several topics like range management including security issues and cyber; airspace/orbital space integration including impact of microsatellites upon the airspace and communication standards; space safety and sustainability including unique anthropogenic space objects identification; security including cyber and space security challenges; space environment effects and Impacts including space weather forecasting; related Issues such as role of human factors in STM or international or initiatives and concern.

Session: Space Situational Awareness and Green Space

Chairs: Riccardo Bevilacqua, USA and Xiangyu Li, China

Space Situational Awareness is to provide decision-making processes with a quantifiable and timely body of evidence (predictive/imminent/forensic) of behavior(s) attributable to specific space domain threats and hazards. The session will cover broad-ranging technical, and policy related aspects associated with the topic of SSA: identification, forecasting, tracking, association, risk assessment, resource allocation, spacecraft control, information & communication, proximity operations, space weather, drag-controlled re-entry, alternative (non-propulsive) deorbiting technologies, liability and insurance issues and a host of other related topics. Continued sustainable access and utilization of space relies on the awareness of its environment, both from the perspective of human operators on the ground and autonomous spacecraft during flight. Moreover, as the nature and number of participants utilizing the space environment grows, there is critical need for steadfast governance driven by a coherent space policy.

Session: Space Elevators for Green Space Activity

Chairs: Peter Swan, USA and Gefei Shi, China

Space Elevators, as permanent Transportation and Logistics infrastructures will lift massive cargo (30,000 tons per year early on) routinely, daily, cost effectively, and with environmentally friendly operations to GEO and beyond. This track will discuss the realization that commercial ventures are entering the engineering development phase. The architectural baseline has been established and will lead to customer satisfaction in such arenas as Space Solar Power satellites to GEO, 1,000,000 tons of cargo to Mars, and direct support to cislunar region as soon as it is operational. This track will address the status of the engineering and projections of the customer needs while focusing upon the remarkable concept of Dual Space Access Strategy where the strengths of both advanced rockets and space elevators are combined.

Session: Space and Modern Society

Chairs: O. Bannova, USA; Anna Barbara Imhof, Austria; Kun Qin, China

The space activity during six decades is strongly impacting the quality of life on Earth. The session will review a broad range of topics such as Art, culture, architecture, society's expectations including technology and knowledge transfer. Impact of innovation derived from space R&D when transferred. Into new products, new services or new processes. Architecture includes all topics related to new habitat for space and analog terrestrial environment.

Session: Space Law

Chairs: Shouping Li, China

This session focuses on the legal, ethical, and policy implications of space activities. It examines the governance frameworks that shape space exploration and utilization, including international treaties, laws, and industry standards. The aim is to provide a comprehensive understanding of the current legal framework governing space activities, highlight ethical considerations and policy implications, and explore new solutions and avenues for improvement in space law.

Session: Space Investment

Chairs: Xijun Zhao, China

This session will delve into space industry investment, highlighting trends, opportunities, challenges, and countermeasures. It will analyze the latest market developments from fiscal, financial, and tax perspectives. Key topics include assessing investments in commercial spaceflight, satellite communications, space exploration, etc. Global government incentives and policies will be examined, along with the role of private capital in driving innovation. Ethical considerations and sustainability practices will also be addressed to ensure responsible growth in this sector.

Session: Commercial Space Development

Chairs: Kaicong Long, China

Commercial space industry is a rapidly growing and innovative sector that is transforming the global economy. It is creating new jobs, driving economic development, and advancing scientific knowledge. Commercial space companies are also cooperating with governments and other organizations to promote international cooperation and peace. This industry is a new engine of economic growth, an open field for innovation, and a blueprint for the next generation of business models. This session will focus on the latest developments in commercial spaceflight, space tourism, space mining, space manufacturing, and other commercial related topics.

ABSTRACT SUBMITTAL:

Technical paper abstracts (250 to 500 words in length) in the areas described above or related to planetary defense will be accepted electronically through the conference website (to be linked on IAA website). Please be sure to designate the topic area your paper addresses (see topics listed above). The deadline for receipt of abstracts is **September 15, 2024**.

PAPERS:

Full-length manuscripts are due by close of business on October 20, 2024. Revisions and corrections will be accepted within two weeks after the end of the conference. The format for papers is specified on the conference website. Accepted papers will be published on the official conference proceedings. Full-length manuscripts may be considered for publication in a special edition of *Acta Astronautica*.

KEY DATES:

May 1, 2024:	Call for Papers
September 15, 2024:	Abstract submission deadline
September 30, 2024:	Final abstracts selected and invitations extended
November 5, 2024:	Preliminary program available
December 9 - 13, 2024:	Symposium

ORGANIZATIONAL STRUCTURE

Hosts

Chinese Society of Astronautics (CSA)
International Peace Alliance (Space) (IPA)
China High-Tech Industrialization Association (CHIA)
China Association of Remote Sensing Application (CARSA)
China Electronics Chamber of Commerce (CECC)

Co-hosts

International Academy of Astronautics (IAA)
International Astronautical Federation (IAF)
Space Foundation
Association of Space Explorers (ASE)
International Space University (ISU)
Rice University's Baker Institute's International Space Medicine Summit (ISMS)
George H.W. Bush Foundation for U.S.-China Relations ("Bush China Foundation")

Strategic Partners

China Communications Industry Association (CCIA)
GNSS & LBS Association of China (GLAC)
Aircraft Owners and Pilots Association (AOPA) of China
ZGC Commercial Aerospace Industry Innovation Alliance

Co-organizer

Oriental Business

Organizer

State-Guest Entrepreneur Club (SGEC)

Presidium

See online document.

CONFERENCE WEBSITE:

For more detailed information, please visit the IAA official website at <https://iaaspace.org/ipospace>

**IPSPACE Secretariat
International Innovation Research Institute (IIRI)**

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