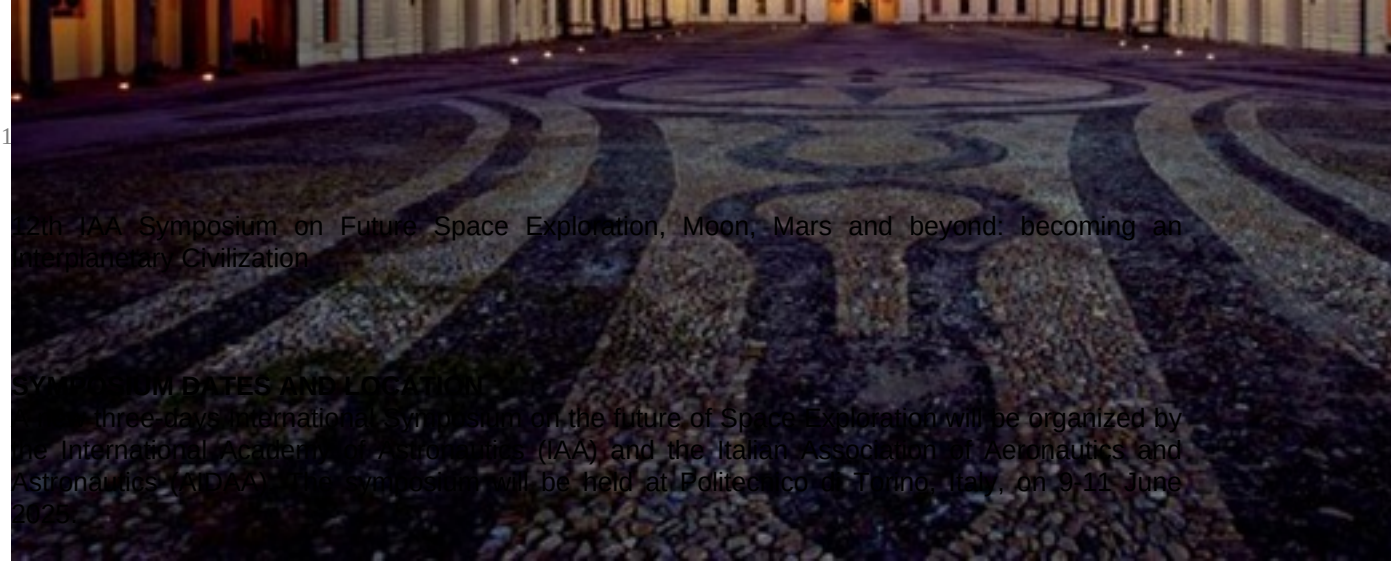
12th IAA Symposium on Future Space Exploration

Monday, 9 June 2025 - Wednesday, 11 June 2025

Torino, Italy

Scientific Programme



12th IAA Symposium on Future Space Exploration, Moon, Mars and beyond: becoming an interplanetary Civilization

SYMPOSIUM DATES AND LOCATION

A new three-days International Symposium on the future of Space Exploration will be organized by the International Academy of Astronautics (IAA) and the Italian Association of Aeronautics and Astronautics (AIDAA). The symposium will be held at Politecnico di Torino, Italy, on 9-11 June 2025.

SYMPOSIUM GOALS

The International Academy of Astronautics has been fostering global cooperation in human and robotic space exploration for more than five decades. With the return to the Moon already started with robotics spacecraft and with humans in the next few years, planning for exploration beyond LEO is becoming finally a reality, while it is expected that the world's space agencies will leave much of the work in LEO to private organizations.

With the support of AIDAA, the goals of this new Symposium are to present the final results of IAA activities related to programs beyond LEO, beginning with the Moon Village vision. The Moon Village is considered the next logical step for humans beyond LEO and a stepping stone for Mars exploration and other interplanetary journeys.

The aim is to promote an exchange of ideas and experiences, within the space community, discussing the activities presented, and proposing new concrete global space exploration activities involving established and emerging space agencies and industries.

Special effort will be devoted to involve young professionals and new space start-up companies, making the symposium a forum for fostering new initiatives.

Papers related to technology, science, programmatics, economics, ethical and cultural aspects of exploration will be accepted.

Technology

Propulsion and power generation

Mission and trajectory design

Attitude dynamics

Navigation, guidance and control

Very deep space telecommunications

Sensors, detectors and lens systems

Precursor interstellar missions

Nanotechnology and robotics

Innovative concepts

Regenerative life support systems

ISRU systems

Planetary protection

Telepresence

Structures and materials

In-space manufacturing

Science

Scientific objectives and payload requirements

Present outgoing scientific missions

Biosignatures from space

Medical problems of very long-range spaceflight

Hibernation

Planetary environments

Programmatics

Cooperation schemes and roadmaps

Reporting of the ongoing IAA Study Groups

Role of the public and private space stations in space exploration

Motivations

Motivations and human aspects

Policy and international cooperation

Ideas from science fiction to technology

Policy/Law

Lunar Governance

International Lunar Cooperation

Law implication of Exploration Activities

Economics

Funding aspects and economic sustainability

Space mineral resources

Space resources exploitation

Ethics

Ethical aspects of long-range exploration

Environmental issues related to space exploration

From exploration to colonization

Ethical aspects of terraforming

Robot ethics

Adaptation of humans to new environments

Experience of 10 Years of ISS permanent activity

Cultural

Multicultural aspects of human space exploration

Outreach aspects of Space Exploration

Access to space for emerging countries