



COSPAR 2026

Florence
1-9 August

46th
Scientific
Assembly

Sustainable
space research
for the planet



App



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DI ASTROFISICA



COSPAR
COMMITTEE ON
SPACE RESEARCH

Message from the COSPAR President



Welcome to the 46th Scientific Assembly of the Committee on Space Research (COSPAR), to be held from 1-9 August 2026 in the magnificent city of Florence, Italy. It is with great pleasure and honor that we welcome you to this Scientific Assembly with the theme: “Sustainable space research for the planet”, organized in partnership with our Italian hosts, the National Institute of Astrophysics - INAF - and the Italian scientific community, bringing together the world's leading researchers, scientists, engineers, educators, and students dedicated to advancing space research for the benefit of humanity.

For more than six decades, COSPAR has served as a unique international platform for scientific exchange, fostering cooperation across disciplines, cultures, and nations. Through its Scientific Assemblies, COSPAR continues to strengthen the global space research community, encouraging the free exchange of ideas and the pursuit of knowledge beyond borders.

The 46th Scientific Assembly promises to be an inspiring gathering of the international space science community. Over the course of nine days, participants will engage in cutting-edge scientific sessions, interdisciplinary discussions, space agency roundtables, plenary lectures, panel debates, and networking opportunities that showcase the latest discoveries and technological advances across the broad spectrum of space research. Together, we will explore new frontiers in our understanding of Earth, the Solar System, the Universe, and the role of space science and technology in addressing global challenges.

Florence symbolizes curiosity, creativity, innovation, and the relentless pursuit of knowledge—values that continue to guide scientific exploration today. The city's rich cultural heritage, scientific legacy, and vibrant academic environment provide an inspiring setting for the exchange of ideas and the development of new collaborations that will shape the future of space research.

Italy has long been a distinguished contributor to space science and exploration. Through its scientific institutions, universities, industry, and international partnerships, Italy has played a vital role in advancing our understanding of space and developing technologies that support exploration, Earth observation, planetary science, astrophysics, and human spaceflight. The COSPAR Scientific Assembly offers a unique opportunity to celebrate these achievements while fostering new collaborations among participants from around the world. Beyond the scientific program, we encourage you to experience the extraordinary beauty, history, art, and hospitality of Florence and the Tuscany region.

We also extend our sincere appreciation to the LOC team, to the chairs and co-chairs of the Program Committee as well as to the Program Committee members and to MSOs/DOs who shaped the 159 scientific events of the Assembly. We are also very grateful for the involvement of a wide variety of organizations, institutions, sponsors, exhibitors, and volunteers whose commitment and support make this Scientific Assembly possible. Their contributions help create an environment where scientific excellence, innovation, and international partnership can flourish.

COSPAR's mission remains as relevant today as ever: to promote international scientific collaboration and ensure that the exploration and use of space continue to serve peaceful purposes and benefit all humankind. On behalf of the COSPAR leadership, the Scientific Program Committee, and the Local Organizing Committee, I extend my heartfelt gratitude to all participants for joining us in Florence. We look forward to a remarkable week of scientific exchange, new partnerships, inspiring discussions, and discoveries that will help shape the future of space research.

Yours sincerely,
Pascale Ehrenfreund
COSPAR President

A view to the Space Science Future from the *Cradle of Renaissance*.

It will be a great pleasure and honor to welcome all participants to the forthcoming 46th COSPAR Scientific Assembly at the Fortezza da Basso Conference Centre, in Florence, Italy, 1-9 August 2026.

Your ideas, expertise, and experiences, shared among us, will contribute to reshaping the future of space science beyond imagination and stimulate the development of the next generation of space professionals and students across all regions and relevant disciplines in this rapidly rising new space age.

Italy's talented and passionate space scientists and engineers, with their rapidly elevated profile and the world's leading advanced industries at their disposal, will also share our proven capabilities and versatile approaches in channeling academia and industry, within developed and developing nations.



The COSPAR 2026 Local Organizing Committee (LOC) and Program Committee (PC), with the support of the Ministry of Science and ICT, the Italian Space Agency (ASI), the Italian National Committee for COSPAR, Italian Astrophysics and Space Science institutes, Italian Space Science societies and many private companies,

are committed to offering the best and most effective platform where all participants can be inspired and enlightened in every way. In addition, Florence is a superlative destination, boasting state-of-the-art conference facilities, the finest accommodations, and world-class city infrastructure. All participants will have a series of superb and pleasant experiences and opportunities to appreciate Florence's rich architectural, cultural, and urban legacies in and around the Assembly.

Yours sincerely,
Pietro Ubertini
on behalf of the Local Organizing Committee

An unforgettable experience!

Sponsors



Lockheed Martin is a global aerospace technology company driving innovation and advancing scientific discovery. Our all-domain mission solutions and 21st century vision accelerate the delivery of

transformative technologies to ensure those we serve always stay ahead of ready. The spacecraft and systems that we design, build and operate have been a part of exploring every planet in our solar system. They have landed on Mars, executed tiny orbits around asteroids, flown past Pluto and explored the Kuiper Belt. The Lockheed Martin-built Orion spacecraft successfully splashed down in the Pacific Ocean on April 10, 2026, marking a major milestone in humanity's return to deep space exploration.



To promote, develop, and disseminate scientific research and space and aerospace technology, and to implement Italy's space policy in accordance with government guidelines: this is the mission of ASI, the public agency established in 1988 and now one of the world's leading space agencies. With these objectives in mind, the Agency contributes daily to advancing our understanding of the universe and to the development of innovative technologies. In addition to its headquarters in Rome, which also houses the Space Science

Data Centre, ASI has operational centers in Matera (Giuseppe Colombo Space Centre), in Selargius near Cagliari (Sardinia Deep Space Antenna), and in Malindi, Kenya (Luigi Broglio Space Centre). It holds stakes in companies in the sector (Altec, e-Geos, SpaceLab) and participates in the E. Amaldi Foundation. ASI also boasts solid diplomatic expertise, which it uses to develop strategic partnerships with all major space agencies.



HEX20 delivers end-to-end satellite mission solutions spanning design, development, qualification, launch integration, deployment, and in-orbit operations. We develop modular and scalable CubeSat to microsatellite platforms supporting technology demonstrations, SATCOM, Earth Observation,

PNT, and hosted payload missions across LEO, cislunar, and deep-space environments. Currently, we are executing an Earth Observation constellation integrating SWIR payloads, GHG monitoring instruments, and optical imaging systems with high-bandwidth inter-satellite links (ISL), offering long-term rideshare opportunities. With multiple programs advancing, HEX20 continues to expand its capabilities in launch services, capacity development, and FLATSAT-based training initiatives globally.



Drawing on over 40 years of experience and a unique combination of skills, expertise and cultures, Thales Alenia Space delivers cost-effective solutions for telecommunications, navigation, Earth observation, environmental monitoring, exploration, science and orbital infrastructures. A joint venture between Thales (67%) and



Leonardo (33%), Thales Alenia Space also teams up with Telespazio to form the Space Alliance, which offers a complete range of solutions including services. The Company has more than 8,100 employees in 7 countries with 14 sites in Europe.



Teledyne Space is a trusted global leader in innovative engineered solutions, manufacturing advanced electronics, imaging and sensor systems for space. Working with the world's foremost space agencies, NASA, ESA, JAXA, and KASA,

collaborating on space projects for over half a century, we deliver across a wide range of applications for institutional requirements through to commercial space specifications.



Korea Astronomy and Space Science Institute (KASI) is the national research institute dedicated to advancing astronomy and space science in the Republic of Korea. KASI conducts cutting-edge research in astrophysics, space exploration, and the development of scientific

satellite payloads, contributing to global scientific progress. The institute operates world-class observational facilities and develops innovative space missions and instruments. KASI also actively promotes international collaboration with leading research organizations and plays a key role in fostering public engagement and science outreach. Through its efforts, KASI continues to expand humanity's understanding of the universe and inspire future generations in science and technology.



Nuclear Instruments is an Italian company specialising in advanced electronic systems for scientific research, with a strong focus on astrophysics, space instrumentation, and radiation detection. The

company designs space-qualified front-end and back-end electronics, FPGA firmware, control software, and high-performance data acquisition chains for complex detector systems. Its space-related experience includes payload electronics, readout architectures, real-time processing, electronic ground support equipment, low-power neural-network implementation on FPGAs for onboard data processing, and synchronisation of detectors with thousands of acquisition channels. Nuclear Instruments works closely with research institutes and scientific collaborations, translating demanding experimental requirements into reliable hardware, firmware, and software solutions for high-quality scientific data acquisition.



For over fifty years, Pecchioli Research has been designing and manufacturing precision optics for critical applications in the aerospace, defense, scientific research, and advanced manufacturing sectors.

Thanks to our proven expertise in optical manufacturing, rigorous quality control, and meticulous process management, we guarantee consistent performance, full traceability, and expert technical support throughout the entire product lifecycle. We develop customized, reliable optical solutions suitable for highly complex applications.



Science Explorer (SciX) is a NASA-funded digital library operated by the Center for Astrophysics. Building on the successful Astrophysics Data System (ADS), SciX connects researchers to over 35 million



records—including literature, data, and software—across astronomy, Earth science, heliophysics, physics, and planetary science. The platform offers a user-friendly search interface with citation tracking and direct links to external datasets. By adhering to FAIR principles and NASA's open science goals, SciX makes scientific knowledge highly accessible, ultimately fostering interdisciplinary collaboration and accelerating research.



Space It Up! connects Italy's leading universities, research centers, and companies to advance space research and technology. Through the Space It Up! Program, funded by the Italian Space Agency (ASI) and the Ministry of University and Research (MUR), it explores nine key research areas, ranging from robotics and autonomous systems to human



spaceflight, planetary resources, life sciences, and advanced habitats. By combining academic expertise with industrial know-how, the program addresses critical challenges such as resource mapping, in-situ resource utilization, astronaut health, and bioregenerative life-support systems. Shared infrastructures and coordinated strategies foster collaboration, accelerate technological development, and strengthen space capabilities, contributing to a more sustainable space economy. Find out more on our website: <https://spaceitup.it/>

YURI

Yuri is a leading commercial space biotech company that leverages the unique conditions of microgravity to research and develop groundbreaking biotechnological innovations and provide an end-to-end implementation service (Yuri Lab-as-a-Service). With over 25 successful research missions and 150+ experiments flown to the ISS, including partnerships with NASA, ESA,



GSK, Charité Berlin, and MIT, our interdisciplinary team of aerospace engineers and biologists is taking pharmaceutical and biotech research to a new level—advancing drug discovery, optimized biomaterials, and sustainable food production processes both in space. And offering microgravity simulator products (3D) RPM and (2D) Clinostat for microgravity research on Earth.

Exhibitors



Supporters & Patronage



Regione Toscana

Message from the Program Committee

Dear participant, the Program Committee welcomes you to the 46th COSPAR Scientific Assembly in Florence.

COSPAR 2026 brings together an exceptionally broad and vibrant scientific programme, reflecting both the vitality of the international space research community and the growing importance of interdisciplinary dialogue. The Assembly has attracted a remarkable number of abstracts and posters, a clear sign of the strength, diversity, and global reach of the research that will be presented during the Assembly in Florence. Across a very large number of scientific sessions, panel meetings, and special events, participants will have the opportunity to explore the latest advances in space science, from astrophysics and planetary science to Earth observation, heliophysics, life and materials sciences, and fundamental physics.

A distinctive feature of this Assembly is the strong emphasis on cross-disciplinary exchange. Interdisciplinary lectures, panel discussions, and highlighted events have been designed to bring together different communities, perspectives, and scientific approaches, encouraging discussion and fostering new ideas and collaborations.

Beyond its scientific programme, COSPAR 2026 also offers a rich social programme, providing opportunities for informal discussion, exchange, and networking in the unique setting of Florence. These moments are an essential part of the Assembly experience: they help strengthen existing collaborations, create new links across disciplines and countries, and encourage the free circulation of ideas among researchers at all career stages.

With the participation of experts from all over the world, this Assembly is much more than a scientific meeting. It is a place where communities meet, collaborations are established, and connections are reinforced across scientific, cultural, and geographical boundaries. We hope that COSPAR 2026 will help build new bridges within the international space research community and contribute to overcoming barriers through dialogue, cooperation, and a shared commitment to advancing knowledge.

We warmly welcome you to Florence and wish you a stimulating and inspiring Assembly.

Interdisciplinary Lectures & Special Events

	Sunday Aug. 2	Monday Aug. 3	Tuesday Aug. 4	Wednesday Aug. 5	Thursday Aug. 6	Friday Aug. 7
 ARSENALE BASILICA	14.00 - 14.25 From scientific research to the space Economy 14.30 - 14.55 A new Milestone in Radar Remote Sensing	14.00 - 15.00 Round table space agencies	14.00 - 14.25 Gaia Recent results on our Galaxy 14.30 - 14.55 Life support greening Space	14.00 - 14.55 Panel on Humanity's Cross-Disciplinary Exploration 19.00 - 19.25 The James Webb Space Telescope 19.30- 19.55 Water on the moon	19.15 - 20.00 Advocacy for Scientific Discovery.	14.00 - 15.00 Plenary discussion: Implementation of Disruptive Technologies
 CAVANIGLIA		9.00 -12.30 Dark and Quiet Skies 15.00 - 16.30 COSPAR Opening & Award Ceremony (Part I) 16.30 - 17.30 Poster Opening & Award Ceremony (Part II)				
 SPADOLINI PAVILION		19.00 - 21.00 COSPAR Opening Reception & Award Ceremony (part III)				Interdisciplinary Lectures Special Events and Round Tables Opening Ceremony
 SPADOLINI UPPER 4		11.00 - 12.30 Engineering Innovation Enabling Scientific Research				
 SPADOLINI UPPER 6			11.00 - 12.30 Role of COSPAR in advancing early career 12.30 - 14.00 Panel on Early Career and Intern. Space Societies			
 TEATRINO LORENESE			19.00 - 20.30 ASI Roadmap: Astrophysics and Solar System Studies		14.00 - 15.00 Committee on Industry Relations panel discussion	

Week at a glance timetable

Time	1 Aug (Saturday)	2 Aug (Sunday)	3 Aug (Monday)	4 Aug (Tuesday)	5 Aug (Wednesday)	6 Aug (Thursday)	7 Aug (Friday)	8 Aug (Saturday)	9 Aug (Sunday)	Time
8:30										8:30
8:30-8:45										8:30-8:45
8:45-9:00										8:45-9:00
9:00-9:15										9:00-9:15
9:15-9:30										9:15-9:30
9:30-9:45		Scientific Session 1	Dark & Quiet Skies	Scientific Session 5	Scientific Session 8	Scientific Session 12	Scientific Session 20	Scientific Session 24		9:30-9:45
9:45-10:00										9:45-10:00
10:00-10:15										10:00-10:15
10:15-10:30										10:15-10:30
10:30-10:45										10:30-10:45
10:45-11:00										10:45-11:00
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19:00										19:00

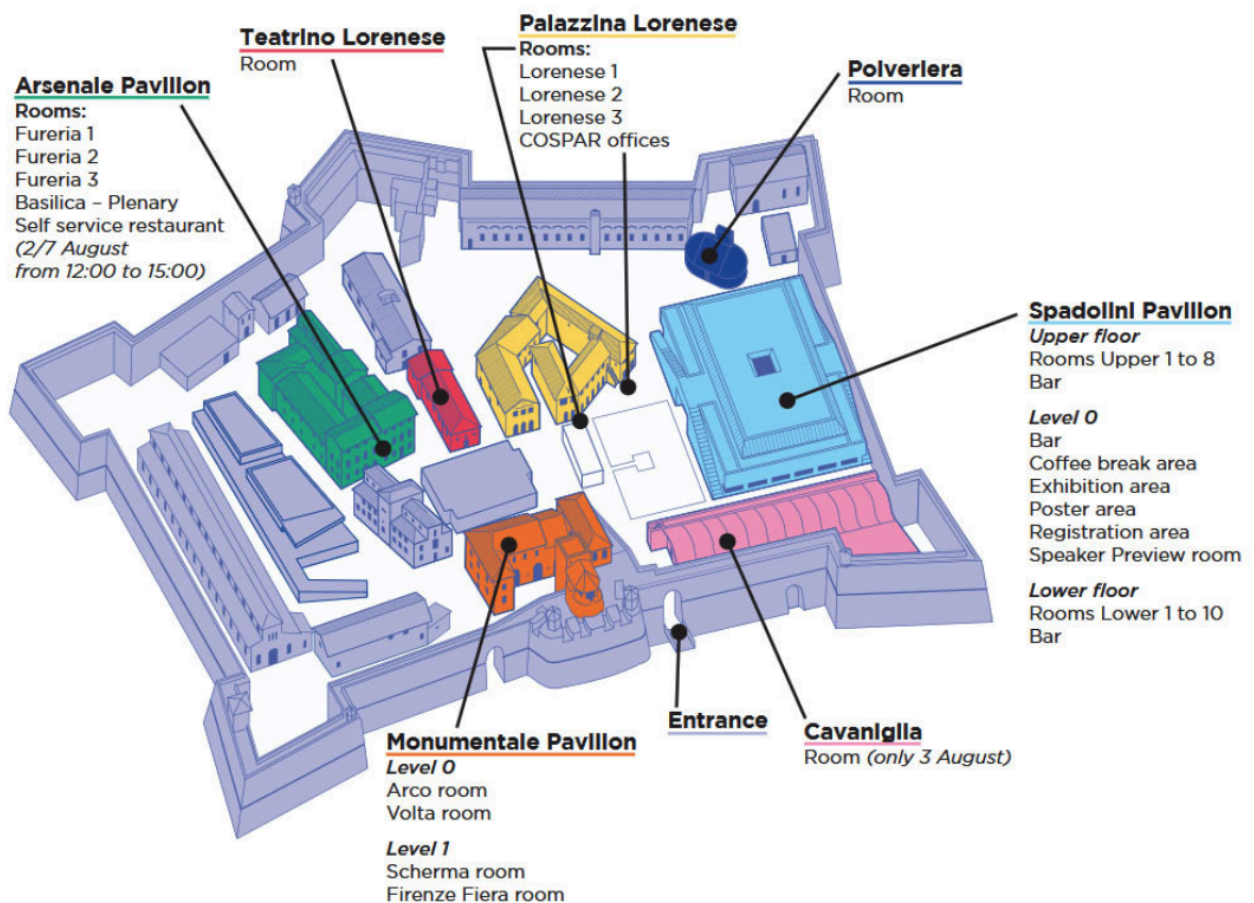
Parallel Sessions timetable

Room (Size) \ Time	Sun AM 2.8.2026	Sun PM 2.8.2026	Sun S1	Sun S2	Sun S3	Mon AM 3.8.2026	Mon PM 3.8.2026	Tue AM 4.8.2026	Tue PM 4.8.2026	Wed AM 5.8.2026	Wed PM 5.8.2026	Thu AM 6.8.2026	Thu PM 6.8.2026	Fri AM 7.8.2026	Fri PM 7.8.2026	Sat AM 8.8.2026	Sat PM 8.8.2026	
Room (Size) \ Time	S1	S2	S3	S4	S1	S2	S3	S1	S2	S3	S4	S1	S2	S3	S4	S1	S2	S3
Arsenale - Basilica (400)						F0.1		D0.1	PE.2	B0.1	PE.2	E0.1		B0.3	PEX.3		B0.2	
Arsenale - Furiera 1 (70)								B6.1	B4.2			P0.S.1		PEX.1			E1.5	
Arsenale - Furiera 2 (70)						A0.2		E1.6			PSB.1			E1.6				
Cavanglia (2000)						PEDAS.3												
Lorenese 1 (70)	G0.1			G0.2	G0.3		G0.4	G0.5				G0.5			E1.7			
Lorenese 2 (50)				PE.1					PMLDS.2	PMLDS.5		PMLDS.4	POIS.2	POIS.4	PMLDS.3			
Lorenese 3 (45)				H0.3	H0.2		H0.4	H0.5				PRBEM.1	PRBEM.2	PRBEM.3				
Monumentale - Arco (50)				E1.22	E1.2			E1.7				TGIGSP.1		E1.19				
Monumentale - Firenze Fiera (50)				E1.23			E1.15		E1.20					E1.14				
Monumentale - Scherma (140)	C3.1	C3.3			CL.1			CL.1		H0.1		C0.2		E1.21				
Monumentale - Volta (140)					E1.1			E1.1				PE.1		E1.1				
Outdoor Area Fortezza da Basso (2000)																		
Polveriera (100)	F3.1	F3.2	PMLDS.1	F3.2	F3.1		F3.2	C0.4	F4.3			F5.2		F2.3	B2.1	B2.1		
Spadolini lower 1 (100)					B1.1				PE.1			B1.2						
Spadolini lower 10 (100)	A2.1				A1.1			A1.1		F1.2		PEX.3			C0.2			
Spadolini lower 2 (100)				B0.4	B3.1		B3.1	B3.1		F1.1		B3.1		PE.1	B4.1			
Spadolini lower 3 (100)				B3.2	B3.3		B5.1		PEX.2		B4.4	B4.5			C4.1			
Spadolini lower 4 (100)	C0.1	C0.3	C1.4	C2.2	C2.1		C2.1					C1.2			C4.2			
Spadolini lower 5 (100)	C5.1		C1.5		C3.2		C3.2	C1.3				C1.3		D3.6	D2.1			
Spadolini lower 6 (100)		D2.6			F0.2	D2.6				D2.3				D2.2				
Spadolini lower 7 (100)	D3.4		D3.1				A3.1					D3.3		D3.5		D3.7		
Spadolini lower 8 (100)		D1.1			D1.2		PPP3		D1.2			D1.3			D2.4			
Spadolini lower 9 (100)			E1.11		D3.1			D3.1	D3.2			F5.1			E1.8			
Spadolini upper 1 (100)		E1.16								E1.4		F3.3		E1.4				
Spadolini upper 2 (100)			E1.3						E1.12			F2.4			E1.13			
Spadolini upper 3 (100)		E1.9			E1.10			E2.2							E1.18			
Spadolini upper 4 (100)		E2.1													E2.3			
Spadolini upper 5 (100)		E2.5						E2.6		E2.4					E2.4			
Spadolini upper 6 (100)	F2.1	F2.2	E1.21		F2.1	PECISS.1	PPP2	F4.1	F2.2									
Spadolini upper 7 (100)	PEDAS.2				PEDAS.1					PPP2			F3.4					
Spadolini upper 8 (100)													PCB.1	PCB.2	F2.4			
Teatrino Lorenese (250)													PIR.1		F3.5			
Villa Vittoria ()																		

Location: Fortezza da Basso

Viale Filippo Strozzi 1 – Florence, Italy
www.firenzefiera.it/en

A unique location in the world – a Medicean fortress in the heart of Florence, combining Renaissance architecture masterpieces and state-of-the-art technologies. A complex of century-old and contemporary buildings, featuring different sizes and characteristics, where you can organise events and exhibitions without leaving anything to chance.



Important: For security reasons, only registered participants and registered accompanying persons will be allowed to enter the venue of Fortezza da Basso.

Scientific events list

<u>A0.1</u>	<u>What Are the Remaining Scientific Challenges above Equatorial Regions? How Small Satellites Could Fill the Knowledge Gap?</u>
<u>A0.2</u>	<u>Coastal Resilience to Hazards: Bridging the Gap between Earth Observations and User Needs</u>
<u>A1.1</u>	<u>Space-based and Sub-orbital Observations of Atmospheric Physics and Chemistry: Critical Information on the Health of our Planet</u>
<u>A2.1</u>	<u>Science and Applications Enabled by Satellite Missions for Monitoring the Global Ocean and the Cryosphere</u>
<u>A3.1</u>	<u>New Earth Observation Technologies and their Applications for Sustainable Terrestrial Ecosystems under Climate Change</u>
<u>B0.1</u>	<u>Overview Event of Scientific Commission-B: Solar System Science Highlights</u>
<u>B0.2</u>	<u>Planetary Exploration Roadmap 2040 and Programmes</u>
<u>B0.3</u>	<u>Sample Returns from Everywhere</u>
<u>B0.4</u>	<u>Technologies and Instrumentations for Solar System Exploration</u>
<u>B1.1</u>	<u>Small Body Science: New Progress by Space Exploration, Observatories, Laboratory Studies of Returned Sample and Theoretical Simulations</u>
<u>B1.2</u>	<u>Space Instrumentation for Scientific, Planetary Defense and Mining Applications for Small Bodies</u>
<u>B2.1</u>	<u>Geologic Mapping and Geodesy for Planetary Exploration</u>
<u>B3.1</u>	<u>Lunar Science and Exploration</u>
<u>B3.2</u>	<u>Accelerating New Space Innovations for Lunar and Solar System Exploration</u>
<u>B3.3</u>	<u>Life Sciences for Habitability in Deep Space, Moon and Mars</u>
<u>B4.1</u>	<u>Comparative Planetology of the Inner Solar System</u>
<u>B4.2</u>	<u>Mercury Science and Exploration</u>
<u>B4.3</u>	<u>Venus Science and Exploration</u>
<u>B4.4</u>	<u>Mars Science Results</u>
<u>B4.5</u>	<u>Exploration of Mars</u>
<u>B5.1</u>	<u>Jupiter, the Galilean Satellites, Rings, and Magnetosphere: Juno Results and JUICE/Europa Clipper Plans</u>
<u>B6.1</u>	<u>Exoplanet Detection and Characterisation: Current Research, Future Opportunities and the Search for Life outside the Solar System</u>
<u>C0.1</u>	<u>International Standards for Space Environment</u>
<u>C0.2</u>	<u>Advances in Remote Sensing of the Middle and Upper Atmospheres and Ionosphere from the Ground and from Space, including Sounding Rockets, Novel Radar and Multi-instrument Studies</u>

<u>C0.3</u>	<u>Sub-ionospheric Very Low Frequency / Low Frequency Signal Propagation Effects Coupled with Numerical Techniques: a Low-cost Tool for Investigating Space Weather and Terrestrial Impacts on Lower Ionosphere</u>
<u>C0.4</u>	<u>Probing Seismic Impacts from Ground to Space: L-A-I Coupling and New Results from the CSES-Limadou Mission</u>
<u>C1.1</u>	<u>Recent Advances in Equatorial, Low- and Mid-Latitude Mesosphere, Thermosphere, and Ionosphere Studies</u>
<u>C1.2</u>	<u>Magnetosphere-Ionosphere-Thermosphere Coupling</u>
<u>C1.3</u>	<u>Space Weather and Earth's Atmosphere - Ionosphere</u>
<u>C1.4</u>	<u>Observation and Modeling of the Characteristics, Causes and Effects of Traveling Ionospheric Disturbances and Thermospheric Gravity Waves</u>
<u>C1.5</u>	<u>Solar Flares and their Impact on the Atmospheres of Earth and Mars</u>
<u>C2.1</u>	<u>Gravity Waves and Turbulence in the Middle Atmosphere and Lower Ionosphere</u>
<u>C2.2</u>	<u>Layered Phenomena in the Middle Atmosphere</u>
<u>C3.1</u>	<u>Planetary Atmospheres</u>
<u>C3.2</u>	<u>Planetary Upper Atmospheres, Ionospheres and Magnetospheres</u>
<u>C3.3</u>	<u>Effect of Space Weather and Dust on Planetary Ionospheres and Atmospheres</u>
<u>C4.1</u>	<u>Improving the Accurate Description of Ionospheric Variability with IRI</u>
<u>C4.2</u>	<u>Development of First-Principles and Empirical Models Related to the COSPAR International Reference Atmosphere</u>
<u>C5.1</u>	<u>Impact of Man on the Space Plasma Environment</u>
<u>D0.1</u>	<u>Overview Session Scientific Commission D</u>
<u>D1.1</u>	<u>Transport and Acceleration of Energetic Particles in the Heliosphere, the Interstellar Medium, and Astrospheres</u>
<u>D1.2</u>	<u>Science with Interstellar Mapping and Acceleration Probe (IMAP)</u>
<u>D1.3</u>	<u>Solar Energetic Particle Events throughout the Solar System: Understanding and Forecasting</u>
<u>D2.1</u>	<u>Off-the-Sun-Earth-Line (OSEL) missions for a 3D view of the Sun and Heliosphere</u>
<u>D2.2</u>	<u>Heliophysics Multi-Messenger Era: from Exploration to Paradigm Shifting Discoveries</u>
<u>D2.3</u>	<u>Magneto-plasma Structures, Streams and Flows in the Heliosphere</u>
<u>D2.4</u>	<u>Magnetic Reconnection in a Turbulent Plasma from the Sun to the Heliosphere to Stars and Galaxies</u>
<u>D2.5</u>	<u>Stellar Forcing of Planetary and Exoplanetary Space Environments</u>
<u>D2.6</u>	<u>The Multifaceted Solar Wind: From its Origins on the Sun to Earth</u>
<u>D3.1</u>	<u>Highlights of Magnetospheric Plasma Physics</u>

D3.2	Cross-scale Coupling and Multi-point Observations in the Solar Wind and Geospace
D3.3	Wave Particle Interactions and Non-thermal Distributions
D3.4	Particle Transport, Acceleration, and Loss in the Earth's Magnetosphere
D3.5	Mesoscale Phenomena Affecting Storm and Substorm Dynamics
D3.6	Comparative Magnetospheres
D3.7	Plasma Transport across Magnetospheric Boundaries
D4.1	Impact of Man on the Space Plasma Environment
E0.1	Scientific Commission E Overview Event
E1.1	Origin of Cosmic Rays
E1.2	From the Formation of Massive Binaries to the Emission of Gravitational Waves
E1.3	Neutron Star Low-mass X-ray Binaries: a Comprehensive View
E1.4	Timing, Spectra and Polarimetry of Galactic and Extragalactic Black Holes. Advanced Analysis and Modelling
E1.5	Timing Analysis of Low Mass X-ray Binaries across the Electromagnetic Spectrum
E1.6	Novae as Astrophysical Laboratories of Extreme Phenomena
E1.7	Connecting Numerical Simulations to Observations in Accreting Systems
E1.8	Accretion disks and coronae in AGN: Observational and Theoretical Advances
E1.9	Understanding Black Hole Physics through Multi-scale Accretion and Ejection Properties
E1.10	Investigating the Origin and Dynamics of Outflows near Compact Objects across the Electromagnetic Spectrum
E1.11	Probing Supermassive Black-hole Growth through Variability Studies in Large Surveys: Synergies from Space and Ground
E1.12	Galaxy Evolution with the JWST near and far
E1.13	Synergies and Exploitation in Multimessenger and Time-domain Astrophysics
E1.14	Exploring the Zoo of Transients in the Era of Big-Data Astronomy
E1.15	Extreme Accretion Events in Supermassive Black Holes
E1.16	High Resolution and Space-borne Radio Astronomy: Recent Achievements, Open Questions and Future Opportunities
E1.17	New Concepts and Technologies for X-ray Astronomy
E1.18	Revolutionising High-energy Astrophysics with New Athena
E1.19	X-ray Polarimetry from IXPE to eXTP and More
E1.20	Multi-facets of the High-energy Transient Sky Seen with SVOM
E1.21	Candidate Galactic PeVatrons: a View from Space

E1.22	Euclid - a Vast View of the Universe, in Anticipation of the First Data Release
E1.23	Cubesats and Smallsats for High Energy Astrophysics Studies
E2.1	Solar-stellar Connections: Closing the Gap
E2.2	Reconciling Theory and Observations: a Session on High-resolution Diagnostics of the Photosphere, Chromosphere, and Corona
E2.3	The Life Cycle of Prominences: New Insights from Solar Orbiter and the Multi-messenger Era
E2.4	Solar jets, CMEs, and Associated EUV Waves
E2.5	Symbiosis of Waves and Reconnection (SWAR): a New Physical Insight into Understanding Heating and Plasma Dynamics at the Sun
E2.6	Waves in the Solar Atmosphere: Theory, Modelling, and Observations
E3.1	Off-the-Sun-Earth-Line (OSEL) missions for a 3D view of the Sun and Heliosphere
E3.2	Heliophysics Multi-Messenger Era: from Exploration to Paradigm Shifting Discoveries
E3.3	Magneto-plasma Structures, Streams and Flows in the Heliosphere
E3.4	Magnetic Reconnection in a Turbulent Plasma from the Sun to the Heliosphere
E3.5	Stellar Forcing of Planetary and Exoplanetary Space Environments
E3.6	The Multifaceted Solar Wind: From its Origins on the Sun to Earth
E4.1	Exoplanet Detection and Characterisation: Current Research, Future Opportunities and the Search for Life outside the Solar System
F0.1	Joint Scientific Commission F Symposium
F0.2	International Life Support Panel
F1.1	Gravity Perception and Response in Plants and Fungi: Ground and Space Studies
F1.2	Space Microgravity Environment Utilization
F2.1	The Biological Effects of Space Radiation on the Health of Astronauts
F2.2	Enabling Human Space Exploration through Research on Risks, Countermeasures
F2.3	Space Radiations: Dosimetric Measurements and Related Models and Detector Development
F2.4	Biological Response to Spaceflight: Mechanisms and Technology Development
F3.1	Chemical Complexity of Molecular Universe
F3.2	Life in Extreme Environments and the Search for Extraterrestrial Life
F3.3	Icy-Moons Investigations from a Biological Perspective
F3.4	Interstellar Chemistry, Interstellar Origins: Observations, Experiments, Models and Theory of the Molecular Evolution of the Universe

F3.5	Origins and Survivability of Life in the Solar System
F4.1	Advances in Biological and Physiochemical Life Support System and Technologies
F4.2	Life Support System Testing in Demonstration and Analog Facilities
F4.3	Space Food and Nutrition
F5.1	Molecular, Cellular and Physiological Changes to Space Flight and Ground Studies
F5.2	Spaceflight-Associated Human Health Risks - from Discovery Research to Quantitative Modeling
F5.3	Isolation/Confinement Studies for Space Exploration
G0.1	Gravitational Effects on Physico-Chemical Processes
G0.2	Drop Tower Days
G0.3	GravityNEXT
G0.4	Advanced Materials and their Technologies for Space Exploration
G0.5	29th ELGRA Symposium and General Assembly
H0.1	Scientific Commission H Highlights
H0.2	Cosmology, Gravitation and Quantum Physics Theory
H0.3	Enabling Technology for Fundamental Physics and Quantum Systems in Space
H0.4	Advanced Methods for Geodesy, Metrology, Navigation and Fundamental Physics
H0.5	Technology Development for Gravitational Wave Detection from Space
PCB.1	COSPAR Capacity Building
PCB.2	COSPAR Capacity Building with Small Satellites
PCSS.1	The Bright Future of Small Satellite Constellations for Space and Earth Science Programs
PE.1	Space Education in Schools in the Era of Generative AI
PE.2	Current Trends, Initiatives and Research in Education and Outreach for Space Sciences
PECISS.1	The Role of COSPAR in Advancing Early Careers in the Global Scientific Workforce
PEDAS.1	Sustainable Space Exploration: from the Mitigation of Space Debris in Earth's Orbit to the Safeguard of Planetary Environments
PEDAS.2	Current State: Human-made Object Effects, Space Debris Situation and Mitigation Efforts
PEDAS.3	Dark and Quiet Sky
PEX.1	Integrating Sustainability, Environmental Ethics and a Responsible Use of Planetary Resources into Planetary Exploration

<u>PEX.2</u>	<u>International and Multiple Stakeholders Cooperation in the Sustainable Exploration and Utilisation of the Moon, Near Earth Asteroids, Mars, and other Celestial Bodies</u>
<u>PEX.3</u>	<u>Challenges and Benefits of Planetary Exploration: Towards a New Edition of the COSPAR Exploration Roadmap</u>
<u>PIR.1</u>	<u>Pushing the Farthest Frontier of Space Exploration</u>
<u>PMLDS.1</u>	<u>Machine Learning and Data Science</u>
<u>PMLDS.2</u>	<u>Machine Learning and Data Science for Geospace</u>
<u>PMLDS.3</u>	<u>The Risks and Rewards of Machine Learning in Earth Science</u>
<u>PMLDS.4</u>	<u>Machine Learning Applications in Heliophysics and Planetary Magnetospheres: Probing the Future</u>
<u>PMLDS.5</u>	<u>Machine Learning and Data Sciences for Space Weather Predictions</u>
<u>POIS.1</u>	<u>Space Weather Prediction and Mitigation</u>
<u>POIS.2</u>	<u>Discussions of the Future: Quantum Computing to Deep Space Travel</u>
<u>POIS.4</u>	<u>Workshop on AI for Physics</u>
<u>PPP.1</u>	<u>Planetary Protection Policy</u>
<u>PPP.2</u>	<u>Planetary Protection Research and Development</u>
<u>PPP.3</u>	<u>The Future of Planetary Protection for Mars</u>
<u>PRBEM.1</u>	<u>Updating Tools and Standards Maintained by the Panel</u>
<u>PRBEM.2</u>	<u>Radiation Environment Observation across the Solar System</u>
<u>PRBEM.3</u>	<u>Applied Numerical and Empirical Space Radiation Models</u>
<u>PSB.1</u>	<u>Scientific Ballooning: Recent Developments in Technology and Instrumentation</u>
<u>PSD.1</u>	<u>Satellite Dynamics: New Developments and Challenges for Earth and Solar System Sciences</u>
<u>PSD.2</u>	<u>Genesis</u>
<u>PSW.1</u>	<u>Advances in Space-Weather Capabilities Assessment and R2O2R</u>
<u>PSW.2</u>	<u>Space Weather at Planetary Bodies in the Solar System</u>
<u>PSW.3</u>	<u>Forecasting Ionospheric Perturbations Described by Indices at Low, Mid, and High Latitudes</u>
<u>PSW.4</u>	<u>FAIR Infrastructure and Open Science</u>
<u>PSW.5</u>	<u>International Space Weather Action Teams : Addressing Space-Weather Roadmap Recommendations</u>

<u>PSW.6</u>	<u>What are the Critical Parameters Required to Predict the Characteristics of Solar Energetic Particle Events?</u>
<u>PSW.7</u>	<u>Towards Improved Coordination in Space Weather</u>
<u>PSW.8</u>	<u>Ground-Based Observations/Measurements and Networks/Infrastructures for Space-Weather Purposes</u>
<u>PSW.9</u>	<u>International Space Weather Missions and Coordination: Current and Planned Missions</u>
<u>PSW.10</u>	<u>Heliostories : Towards Solar Maximum - Comparative Studies of Great Storms</u>
<u>PSW.11</u>	<u>Enhancing Space Weather Forecasting and Mitigation: Approaches and Real-time Impact Assessment</u>
<u>TGIGSP.1</u>	<u>Ground-Based Observations/Measurements and Networks/Infrastructures for Space-Weather Purposes</u>

Public Engagement

The following three public lectures will be held in Italian at Teatro Niccolini, Via Ricasoli 3/5, Florence. Admission is free, but advance registration is required.



Astrophysics from Space: The Global Challenge for the Future

Join Prof. Roberto Ragazzoni, President of the Italian National Institute for Astrophysics (INAF), for a conversation on the future of space astrophysics and the global scientific and technological challenges ahead. A leading expert in astronomical instrumentation, adaptive optics, and the development of wide-field telescopes, Prof. Ragazzoni will offer insights into how new observational technologies are shaping our exploration of the Universe. The event will take place on 3 August at 21:00.

Meet ESA Astronaut Andrea Patassa: “ Lo spazio che verro’ ”

An inspiring evening with Andrea Patassa, Italian Air Force test pilot and a member of the European Space Agency Astronaut Reserve since 2022. He will share the experiences and choices that shaped his professional journey, from his scientific and technical training to his selection by ESA, and will discuss the opportunities and challenges associated with future European human spaceflight missions. The event will take place on 5 August at 21:00.

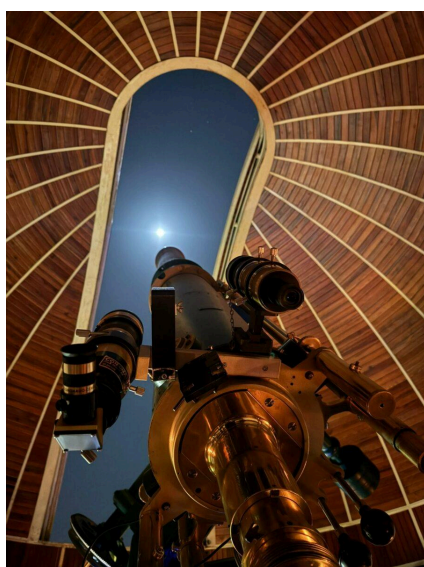


Gravitational Waves and Space-Based Multi-Messenger Astrophysics

Prof. Marica Branchesi, full professor at the Gran Sasso Science Institute and a leading expert in gravitational-wave astrophysics, will guide the audience through the emerging field of multi-messenger astronomy. Drawing on her pivotal contribution to the identification of the electromagnetic counterpart of the neutron-star merger GW170817, she will discuss how gravitational waves and observations across the electromagnetic spectrum are transforming our understanding of the Universe. The event will take place on 6 August at 21:00.

Young Researcher Night

The Young Researcher Night will bring together early-career participants under 35 for an informal evening dedicated to networking, exchange, and the creation of new professional connections. The event will take place on 5 August, from 20:00 to 23:30, at Villa Vittoria, a well-known open-air meeting venue in the heart of Florence. A complimentary buffet will be offered, providing a relaxed setting in which young scientists from different countries and disciplines can meet, share experiences, and develop new collaborations. Participation can be booked during conference registration.



Guided Visit to INAF Arcetri Observatory and Villa Galileo

On 9 August at 17:00, participants will have the opportunity to visit two of Florence's most iconic sites in the history of astronomy. The excursion includes the INAF-Arcetri Astrophysical Observatory, one of Italy's leading astronomical research centres, and Villa Galileo, where Galileo Galilei spent the final years of his life under house arrest and conducted some of his most influential scientific work. Participants will be divided into two groups, alternating between the Observatory and the Villa, with transportation provided by the Local Organising Committee between downtown Florence and Arcetri. Advance registration is required, and places are limited.

University Museum System

All registered participants of COSPAR 2026 are entitled to reduced admission to the museums of the University of Florence Museum System (SMA). This offers a unique opportunity to explore some of



Florence's outstanding scientific collections, including the historic La Specola Museum, one of Europe's oldest natural history museums, as well as the Botanical Garden, the Museum of Anthropology and Ethnology, and the Museum of Paleontology, all available at approximately half the standard admission price during the Scientific Assembly. Further information is available at: <https://www.sma.unifi.it/index.html?newlang=eng>