

**INTERNATIONAL ACADEMY OF ASTRONAUTICS**  
**ANNUAL REPORT 2024**

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**President**

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Available on the IAA Website  
<https://iaaspace.org/about/structure/#Structure-AnnualReport>

In 2024, the International Academy of Astronautics continued to expand its important work that started over 60 years ago to advance the understanding and use of Space for the benefit of humankind. The IAA brings the world's preeminent Spacefaring experts together to provide awareness, solutions and opportunities to the world community as we push further into the unexplored domains of a new Space age. Through a wide range of activities the Academy explores the unlimited possibilities of Space and widens our knowledge of the universe, and most importantly, works to expand the use of Space to improve the quality of life for people all over the world.

Over the past year the IAA has continued to strengthen its membership base, adding distinguished leaders from different disciplines and new countries. Our membership continues to grow more diverse and inclusive. In addition, we have also had a steady increase in the number of workshops, conferences and symposia organized by the Academy. These build on prior areas of interest and have expanded to address new areas such as Interstellar Space Exploration, Space Traffic Management, Space Situational Awareness and Artificial Intelligence.

The Academy also took significant steps to broaden access and use of our publications. Particularly noteworthy is the global reach of the Academy's professional journal, *Acta Astronautica*, which is a top-tier, globally used scientific and technology journal, ranked 2<sup>nd</sup> among 93 journals worldwide, and ranked number 1<sup>st</sup> among Space journals.

It has been a year of great accomplishment in advancing the goals of the Academy for the benefit of people around the world.

### **Cooperation with National Academies**

The International Academy of Astronautics continues the tradition of the great classical scientific academies of the 17th century in Rome, London and Paris, which fostered scientific inquiry and the exchange of ideas and new information in the earliest days of modern science. The IAA restimulate cooperation with national academies to foster a spirit of cooperation and progress that permeates national boundaries, cultures, and institutions.

### **Awards**

In order to promote excellence and recognize the achievements of our members, the Academy has an active program of awards.

The Von Karman Award for 2024 is given to Charles Bolden Jr., USA, Member of the Social Sciences Section. The citation read: "For a lifetime of pioneering achievements in advancing humankind's reach into the Solar System and beyond. Your leadership at NASA as an astronaut and as Administrator expanded international cooperation and understanding across the spectrum of Space endeavors to the benefit of people around the world. Your untiring and inspirational work has resulted in an International Artemis team, as well as a wide range of Earth remote sensing and deep Space robotic missions, and an expanding commercial Space sector that have resulted in the global community embarking on a new age of advanced Space exploration and utilization. And, as a result of your dedicated efforts to diversify and expand those involved in Space endeavors, millions of people across

the world were brought into the Space community and are benefitting from Space-based exploration, research and information”.

The 2024 Laurels for Team Achievements are given to the Chandrayaan-3 Mission Team for the First soft landing near lunar South Pole, successful operations of Lander and Rover experiments, accomplished Lander Hop-test and controlled Propulsion Module deorbiting.

The 2024 Section Awards and their recipients are:

- Basic Sciences Award to Anil Bhardwaj (India): For the development of unique scientific experiments flown on the Indian Moon and Mars missions, which have greatly advanced our understanding in planetary sciences.
- Engineering Sciences Award to Tetsuo Yoshimitsu (Japan): For his achievements in space robotics for explorations of small solar system bodies exemplified with the imaging camera payloads on successful Hayabusa missions. For his expertise in supporting the multilingual activity of the Academy.
- Life Sciences Award to Du Jichen (China): For the outstanding contributions in the field of space medicine exemplified by improving the diagnosis and treatment of neurological diseases. For decade of strong support to the Academy.
- Social Science Award to Isabelle Duvaux-Bechon, France: For her entire career at the European Space Agency with the Earth Global Challenges, and as product engineer in charge of financial Member States commitments. For her support to the Academy as Chair of the Commission on Space Policy, Law and Economy.

## **Book Awards**

The 2024 Basic Sciences Book Award is given to:

Scientific Debates in Space Sciences: Discoveries in the early Space Era, by Louis J. Lanzerotti and Warren D. Cummings, Springer Nature Switzerland, 2023

The 2024 Engineering Sciences Book Award is given to: Rocket Propulsion, by Stephen D. Heister , William E. Anderson , Timothée L. Pourpoint , R. Joseph Cassady, Cambridge University Press, 2019

The 2024 Life Sciences Book Award is given to:

Space Radiation and Astronaut Health, Managing and Communicating Cancer by a Consensus Study Report of National Academies of Sciences, Engineering and Medicine, The National Academies Press, Washington, DC, 2021

and

World manned space flight. History. Technique. People by Yuri Baturin, Cosmoscope, 2023

The 2024 Social Sciences Book Award is given to:

The 52 Volumes of the AAS History Series including the proceedings of 53 History Symposia of the International Academy of Astronautics (IAA) History proceedings by Horace Jacobs, Univelt, California, USA, 1971-2023

and

Space Shuttle Stories Firsthand Astronaut Accounts from All 135 Missions, by Tom Jones, Smithsonian Books, USA, 2023

## IAA Acta Astronautica Journal Certificate of Appreciation

G.I. Sivashinsky: For 1253 citations of the paper entitled:  
Nonlinear analysis of hydrodynamic instability in laminar flames-I. Derivation of basic equations

A. Liñán: For 752 citations of the paper entitled:  
The asymptotic structure of counterflow diffusion flames for large activation energies

del Portillo I.; Cameron B.G.; Crawley E.F.: For 608 citations of the paper entitled:  
A technical comparison of three low earth orbit satellite constellation systems to provide global broadband

### Membership

Dr. Chrysoula Kourtidou-Papadelli, Greece, has led our members' selection program in a successful year. The four Peer Review Committees under the direction of the section chairs have continued to improve the quality of the candidates. We have a regular increase in nominations from the major space countries, and in addition, we have the effect of new conferences such as in Asia and Latin America that generated many nominations from newly represented countries. The statistics by Section are as follows:

IAA 2024			
M1	175	Section 1	210
CM1	35		
M2	442	Section 2	543
CM2	101		
M3	133	Section 3	156
CM3	23		
M4	255	Section 4	292
CM4	37		

  

Total M	992
Total CM	196
Total M+CM	1188
Total HM	13
Total	1201

  

Ratio	
CM1/M1	0.20
CM2/M2	0.23
CM3/M3	0.17
CM4/M4	0.14
CM/M	0.19

  

Inactive Pb Address	9
Inactive	6
Out	1096
Resign	259
Deceased after 1960	714

  

Number Active <70	690
Number members >70	465
Average age	67
Nationalities	89

Members deceased in 2022: Luigi Bussolino, Italy, M2, John B. Charles, USA, M3, Lucien Deschamps, France, CM2, Jacques Durand, France, M2, Vittorio Manno,

Italy, M4, Vasili Sarychev, Russia, M2, Sun Jingliang, China, M2, Jaroslav Sykora, Czech Republic, M4.

Members deceased in 2023: Jean-Jacques Favier, France, M2, Dale A. Fester, USA, M2, Lu Yuanjiu, China, M2, Charles Ordahl, USA, M4, Rolf Skaar, Norway, M2, Lu Yuanjiu, China, M2.

Members deceased in 2024: George S. James, USA, M4, Kuebler Manfred, Germany, M2, Petr Lala, Czech Republic, M4, Thomas P. Stafford, USA, M3, Edward C. Stone, USA, M1, Vladen Vereshchetin, Russia, M4, Wang Yongzhi, China, M2, Wu Meirong, China, M4.

## **Publications**

The dissemination of current information on developments in astronautics and related science and technology has been a primary function of the IAA since its establishment. The Academy produces cosmic studies and position papers along with the proceedings of symposia, technical reports and press releases. The journal *Acta Astronautica* first appeared in 1955, and is published monthly under the auspices of the IAA Publications Committee, by Elsevier Sciences Ltd. The *Acta Astronautica* Journal covers developments in space science, engineering, life science and social science related to "peaceful scientific exploration of space and its exploitation for human welfare and progress."

Prof. Marius Piso (Romania) has been leading the IAA publication activities. The Academy is now a publishing house with more than 85 cosmic studies and four book series (<https://iaaspace.org>). *Acta Astronautica* IAA journal is now second among 89 journals and the first rank in the world for the space journals. The impact factor of *Acta Astronautica* for 2022 is 3.10 and there are 1693 citations. The number of downloads of *Acta Astronautica* has more than tripled between 2010 and 2022 with 1.5 million downloads. There is a thirty years old priority agreement to publish the best papers from the IAC and now from the 30 IAA stand alone conferences. The number of page published is about 6700. The success is reached with a large IAA editorial board composed of the Editor in Chief Professor Rock Jeng-Shing Chern (China Taiwan), and co-Editors Elisabeth Piotelat (France), Steve Croft (USA), Radhika Ramachandran (India), Nikolay N. Smirnov (Russia), Vishal Gajjar (USA), Antonio Viviani (Italy), Olivier Contant (France), Christos Frantzidis (Greece), Antonios Kyparos (Greece), Riccardo Bevilacqua (M2, USA), Christophe Bonnal (France), Jie Chen (China), Binfeng Pan (China), Mauro Pontani (Italy), Jiawen Qiu (China), Jianjun Wu (China) Krishna Dev Kumar (Canada), K.S. Bijukumar (India), Anna D. Guerman (Portugal), Zhengyu Song (China), Robert G. Melton (USA), Arun K. Misra (Canada), Maria Antonietta Perino (Italy), Yury N. Razoumny (Russia), Zheng-Hong (George) Zhu (Canada), Corinne M. Jorgenson (USA), Leslie I. Tennen (USA), Yi-Wei (Eva) Chang (China Taiwan), Ake Ingemar Skoog (Sweden), Moriba Jah (USA), Danielle Wood (USA), Jean-Michel Contant (France), and Jean-Pierre Marec (France).

In addition to the publication of 10 IAA cosmic studies during the last three years, the Academy has published a new book series on History of Space in addition to the books series on small satellites, remote sensing and conference proceedings totaling 12 books in three years.

## **Scientific Activities**

Under the leadership of Dr. Ralph McNutt, USA, the IAA has continued significant acceleration in conference activity. The Academy traditionally generates

one third of the sessions and papers presented at the International Astronautical Congress each year amounting 13 IAA Symposia, each one having multiple sessions. In addition, the Academy is now conducting each year more than 20 standalone conferences in all continents. In 2023 the number of IAA regional meetings and standalone conference amounted 30 as follows:

### 2023 IAA Standalone conferences

- 01-02 March 2023, 9th Space Traffic Management Conference, Austin TX, USA
- 03-07 April 2023, 8th IAA Planetary Defense Conference, Vienna, Austria
- 07-12 May 2023, 14th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany
- 08-09 June 2023, Spacecraft Mission Operations: SMOPS-2023, Bangalore, India
- 10-13 July 2023, 8th IRG Interstellar Symposium, Montreal, Canada
- 13-16 September 2023, 10th CSA-IAA Conference on Advanced Space Technology - Space Technology Innovation and Space Commercialization, Shanghai, China
- 1st October 2023, Academy Day Baku, Azerbaijan
- 02-06 October 2023, 73rd International Astronautical Congress (IAC)
- 17 November 2023, Academy Day, Beijing, China
- 18-20 2023, IPSPACE, Beijing, China

### 73<sup>rd</sup> IAC Baku, Azerbaijan 2-6 October 2023

- IAA-IAF Symposium on Space Life Sciences,
- 51<sup>st</sup> IAA symposium on Search for Extraterrestrial Intelligence (SETI) Science and Technology,
- 25<sup>rd</sup> IAA Symposium on Human Exploration of Solar System,
- 20<sup>th</sup> IAA Symposium on Space Debris,
- 29<sup>th</sup> IAA Symposium on Small Satellite Missions,
- 16<sup>th</sup> IAA Symposium on Strategies & Architectures as the Framework for the Future
- 20<sup>th</sup> IAA Symposium on Visions and Strategies for the Future,
- 55<sup>th</sup> IAA Symposium on Safety & Quality in Space Activities,
- 33<sup>rd</sup> IAA Symposium Space Policy, Regulations, Economics,
- 56<sup>th</sup> IAA Symposium on History of Astronautics,
- 33<sup>rd</sup> IAA Symposium on Space Activity and Society,
- IAA Symposium on Multilingual Astronautical Terminology,
- 22<sup>nd</sup> IAA/UN Workshop on Small Satellite Programs at the Service of Developing Countries

### Finance

Shigeki Kinai, Japan, Vice-President Finance, has led the finance activities with the contribution of Dr. Jean-Michel Contant, Secretary General, in order to maintain our treasury.

	2023-2024	2022-2023	2021-2022
	Audited	Audited	Audited
Receipts	€ 536,699	€ 449,782	€ 563,171
Expenses	€ 481,947	€ 438,814	€ 463,756
Net	€ 54,752	€ 10,968	€ 99,415

Supporting Donor contributions are listed in three categories: Platinum+: Lockheed Martin Corporation, Airbus, CASC, China Platinum: ESA, Japan Aerospace Exploration Agency (JAXA), CNES, Japan Manned Space System corporation (JAMSS), CAST, CALT, ISRO, Group of Astroynamics for the Use of

Space Systems (G.A.U.S.S. Srl), IHI Aerospace Co Ltd, Ishikawajima-Harima Heavy Industries Co., Ltd. (IHI) Mitsubishi Heavy Industries and NEC Corporation. For a few years, the Academy devotes a small budget for supporting developing countries and help participating to IAA conferences in Africa and Latin America.

## **Section Activities**

All four sections have been assuming a proactive role in promoting interaction between, and participation of their members in the affairs of the Academy: Basic Sciences: this section under the leadership of Dr. Athena Coustenis (France) has 175 Members and 35 Corresponding Members. It is the home of space scientists of international renown with all the scientific specialties represented. Engineering Sciences: this section under the leadership of Dr. We imin Bao (China) has 442 Members and 101 Corresponding Members. It has members from a broad range of engineering disciplines coming from industry, academia and government laboratories. Life Sciences: this section under the leadership of Dr. Elena Fomina (Russia) has 133 Members and 23 Corresponding Members. It includes prestigious space medicine specialists and biologists as well as a large number of astronauts and cosmonauts. Social Sciences: this section under the leadership of Prof. Filippo Graziani, (Italy) has 255 Members and 37 Corresponding Members. It includes leaders in management, law, economics history and other societal disciplines related to astronautics.

## **Conclusion**

The work of our Academy continues to be vitally important in expanding humankind's knowledge of Space and the use of Space to benefit people across the globe. We continue to make the Academy's endeavors more expansive; broaden and diversify its global membership of preeminent Space experts; and continue to focus on expanding the resilience and resources of the Academy to carry out its important work.

Achieving the globally impactful work of the Academy would not be possible without the idealism, commitment and dedicated efforts of our Academicians. We owe tremendous thanks to those serving as our Vice Presidents, Board of Trustees, Commissions, Committees, Conference organizers and other working bodies. We are also deeply grateful for the very special and essential leadership role our ever-resourceful Secretary General continues to carry out in orchestrating and expanding the activities of the Academy. My deep gratitude goes to all those serving in these leadership roles, and as well as to all of our Academicians, who have endeavored to make our Academy's successes and achievements possible.

John Schumacher  
President