

INTERNATIONAL ACADEMY OF ASTRONAUTICS
ANNUAL REPORT 2019

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President

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Available on the IAA Web Site <http://www.iaaweb.org>

The International Academy of Astronautics (IAA) has truly lived up to the expectations of its founders. Sixty years of its existence has seen tremendous increase in its activities. Last year saw activities by the four IAA Standing Committees and Academicians on diverse subjects. The Academy is now a publishing house with more than 70 cosmic studies and four book series (<https://shop.iaaweb.org>). Acta Astronautica have made excellent progress with its new editorial board of 26 members credited from rank 9th in 2010 to rank 5th in 2019 among 31 journals in the world.

In 2018 about 30 conferences and workshops were organized. Subjects ranged from small satellites to low cost planetary missions, space systems, planetary defense, space situational awareness, policy issues and planetary exploration. Since these events were conducted in different parts of the world it enabled participation of local experts, teachers and students from different countries. Recognition of talents is one of the goals of the Academy. This year more than 100 prominent personalities from different areas such as life science, space science, technology, legal and social activities, were elected. Today 939 Members, 223 Corresponding Members and 15 Honorary Members are serving the organization in various capacities.

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 cooperates closely 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 2019 is given to Charles Elachi, Member of the Basic Sciences Section of the IAA. The citation read as follows: "For a lifetime of scientific and engineering leadership that enabled breathtaking advances in knowledge of Earth, Solar System and Universe. Synthetic aperture radar which he invented has been utilized for study of Earth and every major body in the Solar System. As Director of the Jet Propulsion Laboratory he led the creation of 24 NASA space science missions, all with significant international participation. His nurturing of three generations of scientists and engineers has paved the way for decades of continuing advances in the space sciences".

The 2019 Section Awards and their recipients are:

Basic Sciences Award to Christopher Russel, Canada

Engineering Sciences Award to Chantal Cappelletti, Italy

Life Sciences Award to Oleg Orlov, Russia and Stéphane Blanc, France

Social Sciences Award to Arthur Dula, USA

The 2019 Laurels for Team Achievement recognizing extraordinary performance and achievement by a team of scientists, engineers, technicians, and managers in the field of Astronautics, are given to the China-Brazil Earth Resource Satellite Project.

Book Awards

The 2019 Basic Sciences Book Award is given to:

Sputnik: 60 years along the path of discoveries
Proceedings
Space Research Institute of the Russians Academy of Sciences (IKI RAN)
Moscow, Russia, 2018
and
Mercury: the view after Messenger
by Sean C. Solomon, Lamont-Doherty, Larry R. Nittler, Brian J. Anderson
Cambridge University Press, 2019

The 2019 Engineering Sciences Book Award is given to:

Integrated Design for Space Transportation System
by B.N. Suresh and K. Sivan
Springer India, 2015

The 2019 Life Sciences Book Award is given to:

How to live in space: Everything you need to know for the not-so-distant future
by Colin Stuart
André Deutsch Book, China, 2018

The 2019 Social Sciences Book Award is given to:

Satellite-Based Earth Observation - Trends & challenges for economy and society
By Christian Bruenner, Georg Königsberger, Hannes Mayer, Anita Rinner (Editors)
Springer International Publishing, Graz 2018

Membership

Dr. Mendieta-Jimenez Francisco, Mexico, has led our members' selection program in a successful year. The four Peer Review Committees under the direction of the section chairmen 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 2019

M1	179	Section 1	209
CM1	30		
M2	394	Section 2	514
CM2	120		
M3	142	Section 3	172
CM3	30		
M4	224	Section 4	267
CM4	43		

Total M	939
Total CM	223
Total M+CM	1162
Total HM	15
Total	1177

Ratio	
CM1/M1	0.16
CM2/M2	0.30
CM3/M3	0.21
CM4/M4	0.19
CM/M	0.23

Inactive Pb Address	8
Inactive	5
Out	1010
Resign	249
Deceased after 1960	653

Number Active <70	685
Number members >70	463
Average age	66
Nationalities	87

Members deceased in 2019: Karel Kudela, Slovak Republic, M1, Christopher C. Jr. Kraft, USA, M2, Nikolai Kardashev, Russia, M1, Scott A. Manatt, USA, M3, Andre Remondiere, France, M2, Bouraoui Ben Ali, Tunisia, M2, Alexei Leonov, Russia, HM, Max Calabro, France, M2.

Members deceased in 2018: John C. Sommerer, USA, M2, Wang Dechen, China, M2, Elisabeth Back-Impallomeni, Italy, M4, Patricia M. Sterns, USA, M4, Karl E. Klein, Germany, HM, Michael F. O'Brien, USA, 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, an e-newsletter 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. Liu Jiyuan (China) has been leading the IAA publication activities. Acta Astronautica have made excellent progress with its new editorial board of 26

members credited from rank 9th in 2010 to rank 5th in 2019 among 31 journals in the world. The impact factor of Acta Astronautica for 2019 is 2.48 compared to 0.6 in 2010. The number of downloads of Acta Astronautica has doubled between 2010 and 2017 with 0.748 million. The number of page published for 2018 is 6184.

This improvement has been made thanks to the action of Dr. Rock Jeng-Shing Chern (China Taiwan) and the new enlarged team of co-editors: - Space Physical Sciences: Athena Coustenis (France), Elisabeth Piotelat (France), Radhika Ramachandran (India), Nickolay Smirnov (Russia), Antonio Viviani (Italy); - Space Life Sciences: Ruth Hemmersbach (Germany), Christos Papadelis (USA); - Space Technology & Systems Development: Riccardo Bevilacqua (USA), Christophe Bonnal (France), Filippo Graziani (Italy), Jiawen Qiu (China), Chen Jie (China), Krishna D. Kumar (Canada); - Space Systems Operations & Utilization: Vipparthi Adimurthy (India), Anna Guerman (Portugal), Lu Yu (China), Robert G. Melton (USA), Arun K. Misra (Canada), Maria-Antonietta Perino (Italy), Yury Razoumny (Russia); - Space Policy, Law & Economics: Haym Benaroya (USA), Corinne Jorgenson (USA); - Space and Society: Culture and Education: Eva Yi-Wei Chang (China Taiwan), Ingemar Skoog (Sweden); and Managing Editor Eva Yi-Wei Chang (China Taiwan). Members are encouraged to use the Acta Astronautica Journal as a vital scientific link to correspond with their peers by subscribing and publishing either regular articles (7-10 pages), short ones called "Transaction Notes" (2-3 pages), Review Articles or Invited Articles.

In addition to the publication of 8 IAA cosmic studies during the last two 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 10 books in two years.

Scientific Activities

Under the leadership of Anatoly Perminov, 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 2019 the number of IAA regional meetings and standalone conference amounted 30 as follows:

2019 IAA Standalone conferences

27 March 2019, IAA Symposium Moon Farside 2019, Paris, France
29 April-03 May 2019, 6th IAA Planetary Defense Conference (PDC), Washington DC area, USA
06-10 May 2019, 12th IAA Symposium on Small Satellites for Earth Observation, Berlin, Germany
21-24 May 2019, 7th IAA Conference on Space Technologies: Present and Future, Dnepr, Ukraine
03-05 June 2019, 13th IAA Low-Cost Planetary Missions Conference, Toulouse, France

17-19 June 2019, 11th IAA Symposium on The Future of Space Exploration - Moon, Mars and Beyond: Becoming an Interplanetary Civilization, Torino, Italy

25-27 June 2019, 2nd IAA SciTech Forum, Moscow, Russia
27-28 June 2019, 8th IAA Conference on Space Systems as Critical Infrastructure, Mamaia, Black Sea, Romania
09-11 July 2019, IAA Italian Regional Symposium of Space Debris Observations from Basilicata, Castelgrande, Italy
03-06 September 2019, 8th CSA-IAA Conference on Space Technology Innovation, Shanghai, China.
23-26 September 2019, 6th IAA Space Flight Safety Symposium (SFS), Saint-Petersburg, Russia
19 October 2019, IAA Symposium on Moon Farside Negotiations, Washington DC., USA
20 October 2019, Academy Day Washington DC., USA
28-29 October 2019, 2nd IAA Symposium on STEAM for Space Leaders of Tomorrow, MIT, Cambridge, USA
11-14 November 2019, 22nd IAA Humans in Space Symposium, Dubai, UAE
11-15 November 2019, 2nd IAA Latin American Symposium on Small Satellites (IAA LASSS), Buenos Aires, Argentina
22 November 2019, Academy Day, Beijing, China

70th IAC Washington DC, USA, 21-25 October 2019

IAA-IAF Symposium on Space Life Sciences,
48th IAA symposium on Search for Extraterrestrial Intelligence (SETI) Science and Technology,
22nd IAA Symposium on Human Exploration of Solar System,
17th IAA Symposium on Space Debris,
26th IAA Symposium on Small Satellite Missions,
13th IAA Symposium on Strategies & Architectures as the Framework for Future Building Blocks in Space Exploration and Development,
17th IAA Symposium on Visions and Strategies for the Future,
52nd IAA Symposium on Safety & Quality in Space Activities,
30th IAA Symposium Space Policy, Regulations, Economics,
53rd IAA Symposium on History of Astronautics,
30th IAA Symposium on Space Activity and Society,
IAA Symposium on Multilingual Astronautical Terminology,
19th IAA/UN Workshop on Small Satellite Programs at the Service of Developing Countries,
34th IAA/IISL Scientific-Legal Round Table on the Future of Regional Cooperation,

Finance

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

	2018-2019	2017-2018	2016-2017
	Audited	Audited	Audited
Receipts	€ 444,677	€ 361881	€ 399549
Expenses	€ 441,160	€ 362777	€ 401320
Net	€ 3,517	€ (896)	€ (1,770)

Supporting Donor contributions are listed in three categories: Platinum+: Aerojet Rocketdyne, Lockheed Martin Corporation, Airbus, CASC, China HEAD Aerospace Co; Platinum: ESA, Japan Aerospace Exploration Agency (JAXA), DLR, CNES, Japan Manned Space System corporation (JAMSS), Boeing, CAST, CALT, ISRO, ChinaRs Geoinformatics, Russian Space Syst (Joint Stock Co); Gold: the Aerospace corp., University Luigi Vanvitelli (Italy), Makeyev Open Stock Co, Group of Aerodynamics for the Use of Space Systems (G.A.U.S.S. Srl), IHI Aerospace Co Ltd, Yuzhnoye, 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. Ralph McNutt has 179 Members and 30 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 Mr. John Schumacher has 394 Members and 120 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. Chrysoula Kourtidou-Papadeli has 142 Members and 30 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. Marius-Ioan Piso has 224 Members and 43 Corresponding Members. It includes leaders in management, law, economics history and other societal disciplines related to astronautics.

Conclusion

As your President, I am very pleased, to actively promote the search to recognize the best experts in the world and in the pursuit of knowledge in a number of areas. It is the endeavor of the Academy to bring together expertise in multiple disciplines of science, technology, policy and impact on human life and society. The numerous publications, conferences, and summits are the way to achieve those goals. I invite all Academicians to engage themselves in strongly and actively supporting the Academy.

Peter Jankowitsch
President