



International Astronautical Federation

News



4/2020 (December 2020)



IAF President's Welcome

Dear IAC Enthusiasts,

It is my pleasure to welcome you to the December issue of the IAF Newsletter.

For those of you who attended the CyberSpace IAC 2020 in October, I hope you enjoyed being connected to the space community again, even if only virtually. This newsletter focuses on the extraordinary results of the 71st International Astronautical Congress. It felt good to be united again and to welcome so many new people from

so many new countries to the IAF's Congress for the first time. It surely motivated me and the whole IAF Secretariat and IAF volunteers to keep on working to ensure the IAF will be connecting all space people for a long time.

This is the last newsletter of 2020, a year that many have defined challenging. That is why I look with great joy to the next year, 2021. We will be meeting, again only virtually, in March for the IAF Spring Meetings but then starting from June 2021, the IAF will welcome you again to its physical events. We are already working with ROSCOSMOS for a safe Global Space Exploration Conference in June 2021 in St. Petersburg, Russia; and with the Mohammed Bin Rashid Space Centre (MBRSC) for a healthy IAC 2021 in Dubai, UAE.

So, please do start working on your papers, the call for abstracts for both GLEX 2021 and IAC 2021 are open. I look forward to working with you all in 2021, a virtual toast to the unexpected achievements of this 2020 and tomorrow's bright future! Wishing you health and happiness for this new year ahead. May our journey of 'Connecting @ll Space People' continue to be a great one.

Warmest Regards,

Pascale EHRENFREUND

IAF President

Connecting @ll Space People



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IMPORTANT DATES:

- Closing of GLEX 2021 Abstracts: **29 January 2021**
- Abstract Mentor Programme: **5 February 2020**
- IAF World Space Award: **10 February 2021**
- IAF Hall of Fame: **10 February 2021**
- Frank J. Malina Astronautics Medal: **10 February 2021**
- IAF Young Space Leaders Nominations: **10 February 2021**
- IAF Emerging Space Leaders Grant Programme Applications: **12 February 2021**
- Submit proposal for IAC 2021 Plenary or Highlight Lecture: **12 February 2021**
- Submit IAF GNF proposals for IAC 2021: **12 February 2021**
- Call for Hosting IAC 2024 - Deadline for notices of intent to submit proposals: **19 February 2021**
- IAF Excellence in Industry Award: **19 February 2021**
- IAF Excellence in "3G" Diversity Award: **19 February 2021**
- Submit an abstract for IAC 2021: **28 February 2021**
- IAF Spring Meetings: **23 – 25 March 2021**
- GLEX 2021: **14 - 18 June 2021**
- IAC 2021: **25 - 29 October 2021**
- GLOC 2022: **31 May – 2 June 2022**
- IAC 2022: **18 – 22 September 2022**
- IAC 2023: **25 – 29 September 2023**



This year has proven to be a very challenging one for the whole world in dealing with the COVID-19 pandemic. These difficult times prove the importance of international cooperation and that we can only succeed by working together.

The IAF is looking forward to continue

Connecting @ll Space People,

across the globe.

We extend our best wishes for the well-being of all of you into the holiday season, and wish you a healthy and prosperous 2021!



IAF 2020 - The CyberSpace Edition

Since its first edition in 1950, the IAC, travelling the world multiple times, has been THE place for all space people to come together and discuss about the latest developments in space. Every year, for 70 years, the International Astronautical Federation, with the support of its great partners, fantastic IAC hosts and, of course, thanks to the commitment of its members, has been able to bring to life an outstanding space gathering and at the same time to create a global, strong and resilient community. 2020 has been, undoubtedly, a challenging year for everyone. The Covid-19 pandemic made most physical meetings near-impossible and, for the safety of all, it was decided to move the IAC in Dubai to 2021. Despite the constraints, the Federation was more than ever determined to play its unifying role for the space community, and the 71st International Astronautical

Congress, IAC 2020, took place as virtual event: “the Cyberspace Edition” between 12 to 14 October 2020 under the theme “IAF Connecting @ll Space People”. The event was offered free of charge to allow the entire global community to engage and it was indeed an outstanding success gathering more than 13,000 delegates from 135 countries. The virtual event featured most of the usual components of a regular IAC with Opening and Closing Ceremonies, Plenaries and Highlight Lectures, IAF GNF Sessions, Special Sessions, Technical Presentations and even a virtual Exhibition. During the three days, 21 live sessions were held and more than 1,300 on-demand video lectures were available in the Online Technical Presentations Gallery. The IAC 2020 Highlights booklet capturing the most memorable moments is available [here](#). Enjoy!



Spring Meetings 2021

23-25 March 2021 *Connecting @ll Space People*

INTERNATIONAL ASTRONAUTICAL FEDERATION

www.iafastro.org

It is the IAF responsibility to think of the health and safety of the community and therefore not to have physical meetings. The IAF Spring Meetings of 23-25 March 2021 will take place remotely, via video and phone connections, in order not to disrupt the activities of the Federation and its community.

All timings and connections details will be communicated via email and on the official website:

<https://www.iafastro.org/events/iaf-spring-meetings/iaf-spring-meetings-2021.html>

Join us for GLEX 2021 in St. Petersburg and submit your abstract now!

#GLEX2021

We invite you all to take part on **14-18 June 2021** in **Saint-Petersburg** to the Global Conference on Space Exploration (GLEX 2021). The conference will bring together more than hundreds of participants from all over the world to discuss the most topical issues in space exploration. Join us for 3 days packed of inspiring sessions, insightful presentations, an innovative exhibition and also great social occasions to celebrate the **60th Anniversary of Yuri Gagarin's spaceflight**.

Space exploration and the innovation it entails are essential drivers for opening up new domains in space science and technology. They trigger **new partnerships** and develop capabilities that create new opportunities for addressing **global challenges**. Space exploration also motivates young people to pursue education and careers in **STEM** disciplines.

To ensure an exciting conference **Technical Programme** and provide a stimulating environment for a productive exchange of ideas and developments in the area of space exploration, the IPC proposes 12 technical topics which are listed here below:

1. **International Cooperation for Space Exploration**
2. **Lunar Exploration**
3. **Mars Exploration**
4. **Exploration of Near-Earth Asteroids**
5. **Exploration of Other Destinations**
6. **Space Transportation**
7. **Key Technologies**
8. **Challenges of Life Support/Medical Support for Human Missions**
9. **Space Stations**
10. **Space Resources**
11. **Ground-based Preparatory Activities**
12. **Transcending Societal Issues for Space Exploration**

*Authors whose abstract was initially accepted for GLEX 2020 are invited to **resubmit their proposals through the IAF Portal** and if needed, shall update the text of their abstracts, subject to maintaining the essential theme of the presentation and relevance to the topic in which they have already been originally scheduled.*

The International Programme Committee (IPC) welcomes submission of abstracts by **29 January 2021** via the dedicated online submission system <https://iafastro.directory/iac/account/login/>.

Abstracts will be selected as oral or interactive presentations. Hurry up and do not miss the chance of submitting your abstract as soon as possible before the deadline!

GLEX 2021 represents the perfect opportunity for you to show your support and involvement to space exploration, and to the overall advancement of space knowledge. Join us as Sponsor for this unique event and become part of the conversation! Our wide range of sponsorship opportunities can be selected according to each company's interest and needs. You will find exciting opportunities and packages that will allow you to display your brand before, during and after GLEX 2021.

For more information on our current sponsorship opportunities, check out our [Sponsorship Kit!](#)

Don't miss out on this opportunity to be involved !

We look forward to welcoming you to the marvelous City of St. Petersburg to join us for a successful, interesting and entertaining conference!

Organizer: Host:

14 - 18 JUNE 2021
St. Petersburg, Russia

60th Anniversary of Yuri Gagarin's Spaceflight

GLEX 2021
GLOBAL SPACE EXPLORATION CONFERENCE

www.glex2021.org



The IAF Launches World's Largest Digital Library on Space!

SPACE KNOWLEDGE WITHIN EVERYBODY'S REACH

The International Astronautical Federation (IAF) is incredibly proud to announce the release of the IAF Digital Library - the world's premier digital library on space, featuring over **50000 full-text articles** from all space disciplines. The IAF's digital heritage covers **more than 70 years** of knowledge sharing and research collaboration, and aspires to strengthen the links between industry, research and academia, and those who work in the front line in the field.

The IAF Digital Library is the **largest source of papers worldwide**, accessible to everyone who is passionate about space including researchers, scientists, engineers, academicians, industrials, policy-makers, media, the young generation and the general public.

This new IAF initiative aims to be a destination where knowledge goes beyond the space and digital divide, extending the boundaries of the past, envisioning the future and establishing itself as an **infinite source of information, innovation, and inspiration for the benefit of humanity**.

Visit the IAF Digital Library: <http://dl.iafastro.directory/>

EXCLUSIVE ANNUAL SPONSORSHIP

Show your company's support to the IAF Digital Library and **expand recognition** of your company's commitment to making space knowledge accessible to the **widest possible audience!**

The IAF Digital Library's exclusive sponsorship package delivers the greatest impact and visibility, and provides seamless promotional exposure leading up to, throughout, and following the launch of the IAF Digital Library.

Align with the **International Astronautical Federation (IAF)** as a top level partner on an **Exclusive Sponsorship Level** and gain **unprecedented premier marketing opportunities** to magnify and strengthen your brand.

Check out the benefits of sponsoring the IAF Digital Library: <http://dl.iafastro.directory/sponsor/>

CONNECT | SHARE | EXPLORE | DISCOVER



IAC 2021 will bring together the **global space community** - academics, industry experts, researchers, policy-makers, the Young Generation, and leaders from all over the world to discuss an incredibly wide array of topics, ranging from space exploration, space debris, space law, space propulsion, small satellites, space security, space architecture to space art, to name a few.

Every year, IAC is attended by well over 7,000 people and present over 2,500 papers, many of which report **world-first results** that set the standards of this **fascinating and fast-moving** field of space. We are optimistic that IAC 2021 will be no exception.

Themed **"Inspire, Innovate & Discover for the Benefit of Humankind"**, the 72nd IAC edition hints at the deep reaching impact of space in human beings and the society, much beyond the scientific arenas. No doubt you will appreciate the unique combination of a cutting-edge technical programme with the wonderful experience of **Dubai City - The City of Gold**.

You can contribute to the **Technical Programme in two different ways:**

Submission of Abstracts

- We invite authors to submit online a descriptive abstract of 400 words. Authors that have their abstract selected for the IAC are expected to attend the Congress and present their paper in the format of an oral or interactive presentation. **All selected papers will be treated as equally** important in the presentation sessions and Congress Proceedings, differing only in the format of the presentation sessions (in other words, Oral Presentation papers will NOT be considered more important than Interactive Presentation papers). Abstracts must be submitted online by **28 February 2021** at <https://iafastro.directory/iac/account/login/>

Questions about the abstract submission process? Contact us at support@iafastro.org

Submission of Special Session Proposals

- Participants interested in organizing a special session shall submit by the deadline of 12 February 2021 an online proposal through <https://iafastro.directory/iac/account/login/>. Special Sessions shall complement the regular Technical Programme with multidisciplinary topics that highlight current scientific and technical trends in space. Special Sessions will be mainly evaluated on the following criteria:

- Special Sessions must be participatory and shall propose an **interactive format such as workshops, campfires, fishbowls, design sprints etc.** Opportunities for audience participation in the discussion must be demonstrated. Standard formats such as panels **will not be considered.**
- Special Sessions shall emphasize **multidisciplinary** and transversal aspects. Cutting-edge topics are particularly encouraged and welcome.

Questions about Special Sessions shall be addressed at sps@iafastro.org

We wish inspiring and successful ideas, and look forward to your active participation!





Get involved with the IAF Abstract Mentor Programme!



Need some help with your IAC 2021 abstract? The International Astronautical Federation (IAF) is continuing the successful **Abstract Mentor Programme (AMP)**, which was introduced in 2018, with the objective of helping young or less experienced researchers improve their abstracts before submitting them, to increase the chance of their work being accepted for presentation at the International Astronautical Congress.

The programme is **open to anyone looking to improve their abstract** and is completely independent of the abstract review and selection process. The **IAF AMP** especially targets researchers and new authors from **resource-limited** settings, who lack access to opportunities for rigorous mentoring in research and writing. The aim is to build capacity for a new generation of researchers and **increase the diversity** of speakers at the IAC.

Mentors will be paired with early career mentees based on their common field of interests (Science & Exploration, Applications & Operations, Technology, Infrastructure, Space & Society).

Submit Your Draft Abstract for Mentoring

If you do not have a lot of experience in writing abstracts, a mentor can help you. We have a pool of expert mentors who can provide **advice and feedback** on how to write successful abstracts for each of the Technical Programme categories.

Experienced abstract submitters can offer you feedback on your draft IAC 2021 abstract and answer your questions on practical issues, such as formal requirements on abstract writing and the quality of the data collected. The deadline for submitting your abstract for the IAF AMP is **5 February 2021**.

Become a Mentor

Mentors can apply for the programme until **12 January 2021**. Mentors must have had at least two abstracts accepted at an IAC and/or should be a member of the International Programme Committee. Becoming a mentor presents an excellent opportunity for enhancement of leadership and coaching skills.

Learn more about the IAF AMP at <https://www.iafastro.org/events/iac/iac-2021/technical-programme-2021/iaf-amp.html>

Questions? Contact us at amp@iafastro.org



IAF AWARDS

2021 Call for Nominations

Dear IAF Community,

The International Astronautical Federation (IAF) is pleased to announce the **opening of the Calls for Nominations** of its 2021 **IAF Awards** :

IAF WORLD SPACE AWARD

The **IAF World Space Award** is the Federation's most prestigious award which recognizes a person (Category A) AND/OR a team (Category B) with **exceptional merit** in space science, space technology, space medicine, space law or space management who has made a fundamental and global impact upon the world's progress in astronautics.



Any IAF member organizations in good standing, IAF Officers and Chairs of IAF Committees may nominate candidates for the IAF World Space Award.

The award consists of a medal and the recipient(s) will also be included into a special section of the IAF Hall of Fame. IAC registration fees will be waived the year of induction for the recipient in Category A and the representative of the team in Category B. The recipient in Category A and the representative of the team in Category B will be invited to participate in the Gala Dinner as guests of the IAF President (free of charge).

The IAF World Space Award recipient(s) will be inducted during the Opening Ceremony of the 72nd International Astronautical Congress (IAC) in Dubai, United Arab Emirates and will also be offered to give a highlight lecture during the IAC.

[The detailed nomination process is available here.](#)
[More information about the IAF World Space Award.](#)

IAF HALL OF FAME

The **IAF Hall of Fame** recognizes eminent individuals who have contributed substantially during the course of their careers to the progress of astronautics including space science, space technology, management of space projects and space benefits to humankind.

The call for nominations for the IAF Hall of Fame is addressed to Representatives of IAF member organizations in good standing/IAF Member organizations in good standing.

The induction into the IAF Hall of Fame is recognized by the award of a certificate presented during the Closing Ceremony of the International Astronautical Congress. The recipient will be invited to attend the Gala Dinner as guest of the IAF President (free of charge). His/her registration fees for the International Astronautical Congress (IAC) will be waived for the year of induction.



[The detailed nomination process is available here.](#)
[More information about the IAF Hall of Fame.](#)

FRANK J. MALINA ASTRONAUTICS MEDAL

The **Frank J. Malina Astronautics Medal** recognizes outstanding contributions to space education by an educator who promotes the study of astronautics and space science. The most important criterion for this award is that an educator **“has taken the fullest advantage of the resources available to him/her to promote the study of astronautics and related space sciences”**.

The call for nominations for the Frank J. Malina Astronautics Medal is addressed to IAF member organizations in good standing. Only one application per organization will be accepted per year.

The Frank J. Malina Astronautics Medal comprises an engraved commemorative medal. The medal will be awarded to the recipient during the International Astronautical Congress (IAC) Closing Ceremony and the recipient will be invited to participate in the Gala Dinner of the IAC as a special guest of the IAF President.

[The detailed nomination process is available here.](#)
[More information about the Frank J. Malina Astronautics Medal.](#)

Nomination material should be sent before 10 February 2021 15:00 CET (Paris time) to the IAF Secretariat, preferably by email at award@iafastro.org or by postal mail to:

IAF Secretariat - 2021 IAF Awards
100 Avenue de Suffren
75015 Paris
France

For further information about the IAF Honours and Awards programmes, please contact the IAF Secretariat at award@iafastro.org.

We look forward to receiving your nominations!



IAF EXCELLENCE IN INDUSTRY AWARD

The IAF Excellence in Industry Award is intended to distinguish an industry organization, member or non-member of the IAF, worldwide for introducing innovative space technologies to the global marketplace and is recognized throughout space industry for successfully executing a landmark space mission.

Who may nominate?

- Members of the Industry Relations Committee
- Industry Organization IAF Member
- IAF Officers (President, Vice Presidents, Executive Director)

Who can be nominated?

The IAF Excellence in Industry Award will call for nominations annually but will be given only when nominations of exceptional merit are received. Open worldwide to IAF Members and non IAF Members organizations.

This Award will be granted to an industry organization and is not intended to recognize an individual in the organization. The IAF will invite the CEO of the industry organization awardee to attend the IAC to receive the IAF Excellence in Industry Award.



*Airbus Defence and Space
- IAF Excellence in Industry
Award Winner 2020*

Only one application per industry organization will be accepted per year. An industry member organization may self-apply or be nominated by any other industry member organization. Nominations not accepted in a given year may be rolled over to next year.

Nomination package shall contain:

- A **citation** of industry contribution to growth of global space industry
- **Landmark achievements** in innovative space technologies and missions
- **Noteworthy accomplishments** in successfully executing major space events

The IAF Excellence in Industry Award nominations will be reviewed by the IRC Award Subcommittee who will then make a recommendation for the recipient to the IAF Honors and Awards Committee and the IAF Bureau during the IAF Spring Meetings. The final decision rests with the IAF Bureau.

The award consists of a statue and a certificate which will be presented to the CEO or senior executive officer of the awarded organization. The executive will be invited to the IAC of the year of induction (free of charge).

Selection criteria:

The awardee should be an Industry organization recognized across global space community for outstanding and sustainable advancements in commercial and civil space, showing the following merits :

- Industry organization is distinguished as the leader in developing and executing landmark commercial and civil space missions;
- Organization is industry role model for collaboration and cooperation in the global space industry workforce;
- Senior leadership and organization’s workforce exemplify commitment to diversity;

Nominations will be judged on the following criteria:

- Demonstration of commitment to highest standard of excellence in mission planning and execution;
- Recognition of exemplary mission performance across global space industry;

Nomination documents must be received by IAF Secretariat by the **19 February 2021**, 23:59 CET, by email at award@iafastro.org.

If email is not available, the reference can be sent by postal mail to:

IAF Secretariat
2021 IAF Excellence in Industry Award
100 Avenue de Suffren
75015 Paris
France

IAF EXCELLENCE IN "3G" DIVERSITY AWARD

The International Astronautical Federation (IAF) is pleased to announce the Call for Nominations of its **2021 IAF Excellence in “3G” Diversity Award** which is intended to recognize IAF member organisations (industry, government, academia) (Category A) AND/OR individual teams/projects (Category B) within IAF member organizations worldwide for outstanding contributions to the fostering of “3G” (Geography, Generation, Gender) Diversity within the space sector.

Who may nominate?

The call for nominations for the **IAF Excellence in “3G” Diversity Award** is addressed to IAF member organizations. For each organization one application per category will be accepted per year. In addition to nominations for other IAF member organizations and teams/projects, any IAF member organization and team/project within IAF member organizations in good standing may also self-apply for this award.



Who can be nominated?

IAF Excellence in “3G” Diversity Award nominations are addressed to organizations (Category A) AND/OR teams/projects (Category B) that have made outstanding contributions to the fostering of “3G” (Geography, Generation, Gender) Diversity within the space sector. Only IAF member organizations in good standing and individual teams/projects within IAF members organizations in good standing shall be eligible to receive the award.

Selection criteria:

Serve as a model for outstanding and sustainable contribution to the fostering of “3G” Diversity within the space sector, whereby significant effort in the promotion of at least 2 of the 3G diversity aspects – Geography, Generation and Gender – including potential additional diversity aspects, and positive results in achieving a balanced representation have to be demonstrated.

Such effort may include, but is not limited to:

- Activities to recruit, retain, and professionally develop individuals who increase the “3G” diversity of the workforce
- Senior leadership in organization or team/project exemplifies commitment to diversity
- Activities to create leadership teams that promote a diverse and inclusive culture
- Sponsorship, implementation or active promotion of programs, initiatives, or projects in the area of “3G” diversity and inclusion
- Recognition of exemplary individual and team behaviours that promote diversity and inclusion
- Innovative approaches, which have resulted in a step up from business as usual
- Level of active engagement of the organization/team within the IAF, specifically in support of promoting and fostering 3G diversity within IAF (e.g. number of diverse committee members, authors, participants in IACs, etc.).
- Etc.

Applications will be judged on the following criteria:

- Demonstration of emerging or sustained commitment to the values of “3G” diversity by documented efforts that are above and beyond routine expectations.
- Evidence of exceptional efforts to promote a working environment that is free from bias and discrimination.
- Substantiation of the contribution that an organization/team has made towards advancing “3G” diversity.

Nomination package shall contain:

- Category of nomination (Specify Category A or B)
- A citation of the contribution to “3G” Diversity (one sentence);
- A summary description of the organization’s or team’s outstanding contribution in the respective (at least 2) diversity aspects (geography, generation and gender); eventual contributions to additional aspects of diversity shall also be mentioned and will be considered.

Applications not accepted in a given year may be rolled over to next year.

The IAF Excellence in “3G” Diversity Award recipient(s) will be selected by the IAF Excellence in “3G” Diversity Award Subcommittee who will review the nominations/applications and make a recommendation for the recipient to the IAF Honours and Awards Committee and the IAF Bureau during the IAF Spring Meetings in March 2021. The final decision rests with the IAF Bureau.

The award consists of a statue and a certificate which will be presented to an official representative of the awarded organization during the annual IAF IDEA “3G” Diversity Luncheon at the IAC. The awarded organization will be given a speaking opportunity at this event.

Nomination/application documents must be received by IAF Secretariat by the **19 February 2021**, 23:59 CET (Paris time), preferably by email at award@iafastro.org (Subject line: 2021 IAF Excellence in “3G” Diversity Award).

If email is not available, the reference can be sent by postal mail to:



European Space Agency (ESA) -
IAF Excellence in “3G” Diversity Award
Winner 2020

IAF Secretariat
2021 IAF Excellence in “3G” Diversity Award
100 Avenue de Suffren
75015 Paris
France

Should you have any questions, don't hesitate to contact us at award@iafastro.org.

We look forward to receiving your nominations!

IAF YOUNG SPACE LEADERS RECOGNITION PROGRAMME

2021 Call for nominations

The International Astronautical Federation (IAF) is pleased to announce its 2021 **IAF Young Space Leaders Recognition Programme** that will provide opportunities to recognize students and young professionals who are demonstrating exceptional leadership in their academics or early careers.



The IAF is soliciting nominations for the 2021 IAF Young Space Leaders Recognition Programme from IAF Members, Regional groups and Technical and Administrative Committees on **students** and **young professionals** between the ages of **21 to 35 years on 1 January 2021** who are:

- Contributing to astronautics through their academic and/or professional activities,
- Reaching out to other young people and to their community to share knowledge and experience,
- Engaging colleagues in the international space community,
- Contributing to the work of IAF committees and/or volunteering in support of other Federation activities such as physical or virtual participation on selection activities related to IAF grants, Next Generation Plenary and awards; participation in organization of IAC technical sessions and other activities; and participation on local organizing committees for GLEC, GLAC and other IAF meetings. (Note: Attendance at International Astronautical Congress does not in itself qualify)

Nominations should contain:

- A nomination letter from an IAF member organization, an IAF Technical Committee or an IAF Administrative Committee summarizing the nominee’s qualifications and specifying how the nominee meets the criteria (please download the template on [Nomination Letter Template](#))
- Two letters of recommendation addressing the contributions and engagement of the nominee.

The 2021 IAF Young Space Leaders will be selected by the Federation’s Young Space Leaders Selection Subcommittee in consultation with the IAF President during March 2021. The Federation will notify the nominating organizations of those selected and subsequently the selectees themselves no later than 1 May 2021.

[Click here to find out all the benefits of becoming an IAF Young Space Leader.](#)

Up to five IAF Young Space Leaders will be selected in 2021. IAF Young Space Leaders will help increase knowledge among and broaden the involvement of students and young professionals worldwide in astronautics activities and the IAF.

Please send the nomination material before **10 February 2021** 15:00 CET (Paris time) to the IAF Secretariat, preferably by email at award@iafastro.org (Subject line: NOMINEE’S LAST NAME Nominee’s First Name-2021 YSL).

[Click here for more information and further sending details.](#)
[Find out more about the IAF Young Space Leaders Recognition Programme](#)

2021 IAF EMERGING SPACE LEADERS GRANT PROGRAMME

The International Astronautical Federation (IAF) is pleased to announce its **2021 Emerging Space Leaders (ESL) Grant Programme** that provides opportunities for students and young professionals to participate in the annual International Astronautical Congress.

Students and Young Professionals between the ages of **21 and 35** on **1 January 2021** with space-related career interests are encouraged to apply for the programme. Up to twenty-five students and young professionals will be selected by the IAF to participate in the 2021 programme.



Who should consider applying?

- Individuals interested in pursuing careers involving the development, application and use of space systems, space science research, the policy, legal, social and cultural aspects of space activities, international cooperation on space programmes and other similar subjects.
- Persons who - for financial, sponsorship or other reasons - **would not otherwise be able to attend an International Astronautical Congress.**

Note: Candidates may apply regardless of their home country or current residence. While all applications will be considered, through this programme the IAF seeks to encourage the participation of young people in nations with emerging space capabilities and interests who would otherwise not be able to attend an International Astronautical Congress.

- Young people who wish to meet and interact with other colleagues from around the world with similar interests.
- Individuals who hope to utilize the knowledge and experiences they gain during the IAC in their own careers and in enhancing space and related activities in their home countries.

What does the grant include?

- Round trip air fare between the candidate's home/residence country and Dubai, United Arab Emirates.
- Support (in kind-services or funding) for local transportation, lodging and meals during the candidate's stay in Dubai, United Arab Emirates.
- Assistance with visa arrangements provided by the IAC Local Organizing Committee and the Government of United Arab Emirates;
- Registration to the 72nd International Astronautical Congress as well as the Space Generation Congress or the 2021 UN/IAF Workshop.
- Mentors will provide advice on presentations at the IAC and on activities before and during the IAC to help grant recipients benefit fully from the Congress and related meetings and meet with the grant recipients during the IAC.

[To start your ESL application please click here.](#)

[For more information on the 2021 ESL Grant Programme please click here.](#)

Application Deadline: 12 February 2021 15:00 Paris Time / UTC + 1:00

For detailed information, application process and requirements please download our ["2021 IAF Emerging Space Leaders Grant Programme Handbook"](#).

[Find out more about the IAF Emerging Space Leaders Grant Programme.](#)

We look forward to receiving your applications!

Dear New Members,

The IAF is pleased and honored to have you on board!

Congratulations, you just joined an outstanding network of **407 members from 71 countries**, including all leading space agencies, companies, societies, associations, museums and institutes worldwide. You are now part of a global community that cooperates daily to promote space activities, to develop new technologies, and to promote awareness about space to government and societies, to better involve them and illustrate the benefits that might come from the utilization of space. You are now part of our network, and we look forward to your precious support in making it wider, stronger, and more effective. We are sure that you are going to help us reach out even more and pursuing our goal of **Connecting @All Space People**. We are confident that there will be fruitful and enduring collaborations between our organizations.

Please, take a look at the [Welcome Kit](#), and discover all the ways in which your organizations can get involved within the



Federation! Also, feel free to use the **"IAF Proud Member Logo"** on your website, in your publications, or wherever you might want to be identified as member of the IAF community. We are excited to count you all as our members. Our membership is a lifelong journey, and we look forward to supporting you throughout it. Please reach out to the Secretariat team should you have any questions about your membership.

NEWS!



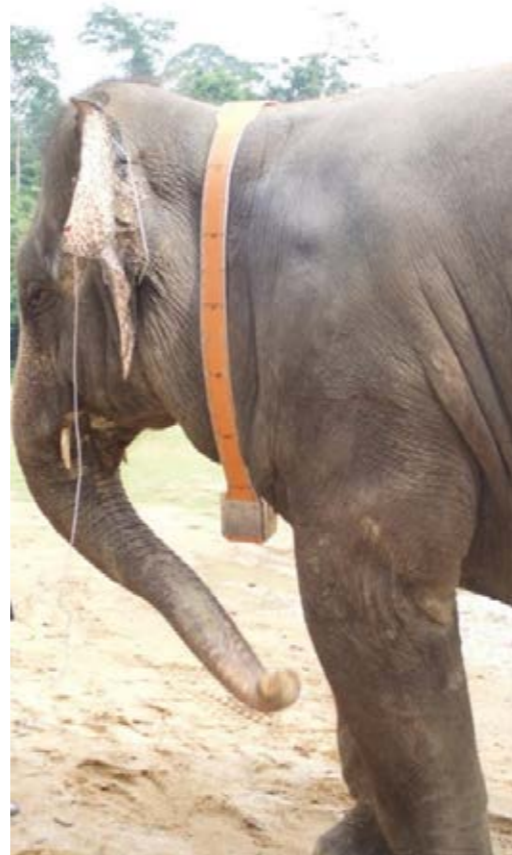
HEAD Aerospace is a privately-owned company with offices in Beijing, Hong Kong, France, and the Netherlands, and international business development teams in Kazakhstan, Morocco, South Africa, and the UK. HEAD provides geospatial solutions based on Earth observation satellites and operating our Internet-of-Things (IoT) constellation.

HEAD operates the Skywalker IoT Constellation that includes 48 satellites with a data collection capability from ground-based terminals every hour down to a few minutes depending on latitude. The constellation carries AIS, future VDES and ADS-B payloads for global ship detection and airplane monitoring services. With unique tracking solutions, Skywalker assists in wildlife tracking, offering clients different IoT solutions. HEAD is currently working on a pilot project to use Space IoT technology for elephant tracking in Africa. This solution is of great value in areas where GSM networks are not reliable or non-existent.



With the access to +40 Earth Observation satellites, HEAD is a key player in the geospatial market providing complex turnkey integrated geospatial solutions. The company manages 60 distributors worldwide to market satellite imagery. HEAD offers direct receiving station for near real-time access to satellite imagery, centralized geodata hub of satellite imagery and

processed geospatial data in the country for government and commercial users. HEAD is currently achieving the final milestone of its multimillion contract to provide a ground receiving station (GRS) to Ethiopia Space & Science Technology Institute (ESSTI). This GRS will allow the space agency to provide near-real-time satellite imagery for agriculture, natural resource monitoring, national infrastructure project and disaster management.



ISRO Offers training on Nanosatellite building: "UNNATI"

India announced a training programme on nano satellite building, on the occasion of the 50th anniversary of the United Nations Conference on the Exploration and Peaceful uses of Outer Space (UNISPACE+50) at Vienna in June 2018. The programme was named as "UNNATI - UNISpace Nanosatellite Assembly & Training by ISRO" (UNNATI in Sanskrit language means 'Development'). The programme is envisaged to train 3 batches of each 30 participants from nearly 45 aspiring countries. Out of this, two batches have already completed, benefitting 60 officials from

33 countries. The first batch was conducted during January - March 2019 for 30 participants from 17 countries (Algeria, Argentina, Azerbaijan, Bhutan, Brazil, Chile, Egypt, Indonesia, Kazakhstan, Malaysia, Mexico, Mongolia, Morocco, Myanmar, Oman, Panama and Portugal) and the second batch was conducted during October - December 2019 for 30 participants from 16 countries (Bahrain, Bangladesh, Belarus, Bolivia, Brunei Darussalam, Colombia, Kenya, Mauritius, Nepal, Nigeria, Peru, Republic of Korea, Sri Lanka, Thailand, Tunisia, and Vietnam).

The facilities of ISRO's U R Rao Satellite Centre (URSC) at Bangalore is used for offering this training. During the 8-weeks of this training duration, the participants were introduced to the basics of satellite technology, mission design, applications and product generation; and were given hands on training in satellite assembly, integration and testing activities.

The registrations for the third batch will be announced during May - June 2020 through the UNNATI website www.isro.gov.in/unnati. Interested applicants may register online through this link and mail to unnati@ursc.gov.in for any clarifications.



Aerotecnica Missili & Spazio (ATMS) celebrates 100 YEARS!

Aerotecnica Missili & Spazio (ATMS) is the journal of AIDAA (Associazione Italiana di Aeronautica e Astronautica, www.aidaa.it). On next year, the Volume 100 will appear: this means that the publications started in 1921. Few scientific journals in aerospace can exhibit this so long tradition and story!

It was neither simple nor easy but now the journal is edited by SpringerNature (<https://www.springer.com/journal/42496>) and soon it will be indexed too.

The centennial of the journal is in-line with the same event of

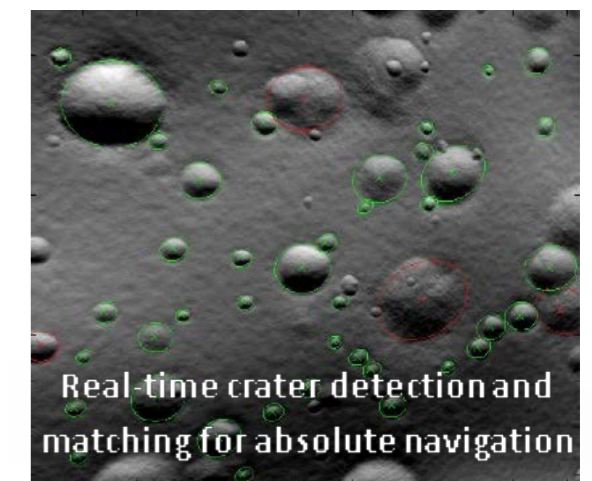
the association which celebrated this on last 30 October 2020, virtually of course.

It has to be remembered that ATMS welcomes all the contributions in the large field of aerospace sciences, technologies and systems. This includes disciplines in the areas of mechanical sciences (flight mechanics, aerodynamics, propulsion, aero-thermo-chemistry, structures and materials, astrodynamics) as well as other ones such as telecommunication, navigation, control, electronics, informatics and all aspects related to ground testing and operations. Contributions regarding the aeronautical or space vehicles as an engineering system are particularly welcome. Papers dealing with overall exploitation and management of aerospace systems and on the impact of scientific applications on system design and operation, as for example in the fields of remote sensing, microgravity, geodesy, exploration and astrophysics, are encouraged too.



NGC Aerospace to demonstrate its navigation system around the Moon by 2024

SHERBROOKE, Québec, Canada, [October 30, 2020] — NGC Aerospace will demonstrate the capability and performance of its Crated-Based Navigation system onboard an actual Moon exploration mission by 2024 thanks to financial support from the Canadian Space Agency.



Compensating for the lack of a GPS constellation around the Moon, NGC's system uses features on the surface of the planetary body – Moon craters – as references to autonomously determine the position of an Orbiter or a Lander in Moon geographical coordinates. This technology processes real-time



camera images taken from Moon orbit and during the descent, extracts craters from the images and matches the detected craters with a pre-stored reference map of lunar craters, without any human intervention.

“Our GPS-like navigation system promises to increase the accuracy at touchdown by orders of magnitude with respect to current landing capabilities.” says Jean de Lafontaine, CEO. Jean-François Hamel, the project manager for the mission, emphasises that such technology is necessary to meet the challenging requirements of future Moon landing missions, requiring landing accuracies better than 100 meters.

This project is undertaken with the financial support of the Canadian Space Agency as part of its [Lunar Exploration Accelerator Program](#) (LEAP). It builds on NGC’s extensive validation of its crater-based technology both by computer using simulated images and by laboratory experiments in NGC’s own Landing Dynamic Test Facility.



Satellogic becomes the global leader in high-resolution data collection from space

On November 6, Satellogic successfully launched 10 NewSat satellites to their Aleph-1 constellation. With these 10 new spacecraft, the company now **owns the largest orbital capacity of high-resolution, high frequency commercial data in the industry.**

Once positioned and fully calibrated, Satellogic’s in-orbit constellation will offer 0.7 meter resolution imagery, providing a more detailed view of the globe for more precise decision making. Additionally, their expanded capacity will deliver increased revisit capabilities, with up to four daily revisits of any point of interest, as well as complete remapping of any country every month and the collection of over 4 million sq. kilometers of high-resolution data every day. The company’s in-orbit fleet is now comprised of 21 satellites, 14 of which are used to deliver high-resolution data to customers.

Since its founding, Satellogic has been driven by the vision of **democratizing access to high-resolution, high frequency Earth Observation imagery.** It’s what has pushed them to design and manufacture highly efficient satellites, and then pass those efficiencies along to customers, giving them unit economics that are better by several orders of magnitude.

By driving down costs Satellogic is not only expanding access to their Dedicated Satellite Constellation service, but also unlocking use cases in agriculture, energy, forestry, insurance,

and financial services. Previously, these industries have had to rely on less efficient technologies — from drones and helicopters to planes and sheer boots-on-the-ground manpower. Now they can **leverage the trusted intelligence of geospatial analytics and imagery.**



The Danish Astronautical Society joins Space Exploration Denmark

The Danish Astronautical Society, founded in 1949, celebrated its 70th anniversary in 2019 and marked the 50th anniversary of the first human landing on the Moon with the exhibit “Around the Moon” in the Round Tower in Copenhagen in October 2019 and in Brorfelde Observatory in 2019-2021. In 2021 an “Around the Moon” traveling exhibit will tour around in Denmark visiting high schools.



The society has also now joined Space Exploration Denmark, a partnership which is coordinated by the Space Division in the Danish Ministry of Higher Education and Science. The partnership consists of actors from universities, companies, societies, organizations and private individuals. The mission of the partnership is to create the best framework for researchers and companies in the development of a strengthened space exploration environment in Denmark. The partnership will be



working on different themes such as human spaceflight, space physiology, architecture on the Moon, STEM development, Mars research, and Danish led technology development for an exploration mission. The Space Exploration Denmark partnership is just one of several partnerships with focus on space being started up in Denmark in order to develop the space sector in Denmark.



A new decade of European exploration: Thales Alenia Space on its way to reach the Moon

Thales Alenia Space will develop two key modules for the upcoming Lunar Orbital Platform–Gateway: I-HAB (International Habitat) and the ESPRIT communications and refueling module. These two modules are the European contribution for this Gateway, one of the pillars of NASA’s Artemis program, designed to return humans to the Moon by 2024. It is being implemented through international cooperation, currently involving NASA (United States), ESA (Europe), JAXA (Japan) and CSA (Canada) with each partner in charge of the development of complementary elements, to be assembled and operated in lunar orbit as from 2024.

Gaining new experiences on and around the Moon will prepare NASA to send the first humans to Mars in the coming years, and the Gateway will play a vital role in this process.

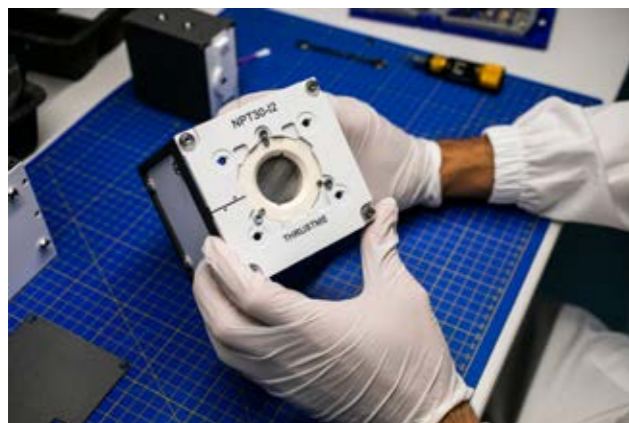
Through these contracts, Thales Alenia Space will call on the full sum of our expertise to expand its knowledge base and push back the frontiers of the cislunar exploration. Looking further ahead, this space station will be a jumping-off point for future human missions into deep space, including Mars.





ThrustMe and Spacety announce the launch of a satellite carrying the world's first iodine electric propulsion system

Paris, France/Luxembourg/Beijing China, 6th November 2020 – ThrustMe and Spacety announce that the BEIHANGKONGSHI-1 satellite, carrying the world's first iodine electric propulsion system on board, was successfully launched into space on a CZ-6 Long March 6 rocket from Taiyuan in China on the 6th of November at 04:20 a.m. (Paris time).



In-space propulsion is becoming a critical subsystem, particularly for satellite constellations, for which high-performance, turnkey, and streamlined solutions are important to ensure economic and environmental sustainability of the space industry.

The use of small satellites operating not individually, but as part of a constellation, has changed the way the industry designs, manufactures, launches and operates satellites. Propulsion systems available for these satellites have so far been too complex, too expensive, or had insufficient performance to provide full constellation deployment capabilities, and new innovative propulsion solutions are needed.

The BEIHANGKONGSHI-1 satellite includes a ThrustMe NPT30-I2 electric propulsion system which uses iodine propellant. Iodine can be stored as a solid and does not require any complex or costly high-pressure storage tanks like conventional gaseous propellants such as xenon. This also means that the propulsion system can be delivered pre-filled, which greatly simplifies satellite integration and testing. Considering the high production cost of xenon, and the predicted supply problems to meet growing demands from

satellite constellations, iodine is seen as an important next-generation propellant to enable sustainability of the space industry. "Iodine is a game changer, and with this mission, we will demonstrate it for the first time", says ThrustMe's CEO Ane Aanesland.

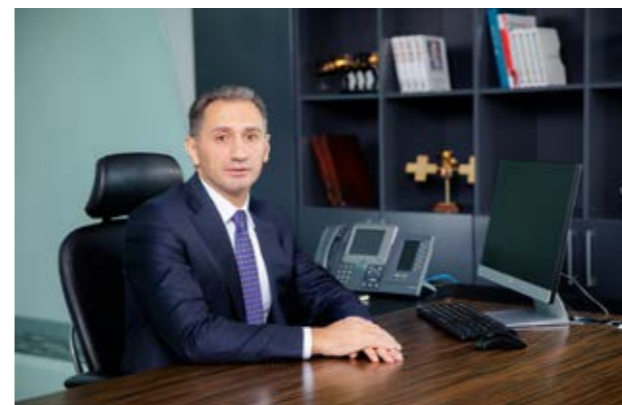


H.E. President Ilham Aliyev at the Opening Ceremony of the IAC 2020 and Azerbaijan's preparations for the IAC 2023.

On 12 October, the President of the Republic of Azerbaijan, H.E. Mr. Ilham Aliyev addressed the participants of the virtual 71st International Astronautical Congress (IAC) - the Cyberspace Edition. In his speech, President Aliyev emphasized the symbolic meaning of hosting the IAC in Baku in 2023, exactly 50 years after it was held in the same city, only once in the proximate geography. "I'm sure that the Congress to be held in our capital in 2023 will give additional impetus to the development of space industry in our country", said President Aliyev and in conclusion highlighted that he looks forward to welcoming the international space community to the capital of Azerbaijan in a couple of years.



Moreover, Azercosmos continues its awareness-raising activities in regard to the upcoming IAC in Baku in 2023, aiming to further promote the significance of hosting the most prestigious space-related event in Azerbaijan. "This platform will activate collaboration between local and international leading space agencies, institutions and tech-companies, enabling synergy among them", said Mr. Rashad Nabiye, the CEO and Chairman of the Board of Azercosmos, during his speech at a state television program on 12 October.



In addition, Mr. Abbas Mammadov, Adviser to CEO of Azercosmos, was interviewed by a local TV channel on the progress made in regard to preparations for the IAC 2023. He stated that the preparations for the successful organization of the Congress are in full swing and that they are being simultaneously coordinated with the IAF.



WTA Certification Program Announced Tier 4 Certification of Azercosmos' Baku Teleport

The World Teleport Association (WTA) awarded Azercosmos with Tier 4 certificate for its teleport in Baku, Azerbaijan under WTA's Teleport Certification Program. Full Certification is issued at a Tier number from 1 through 4, of which 4 represents the highest degree of excellence, and remains in effect for 3 years. The Tier 4 certificate guarantees almost 100% reliability and security of Azercosmos' technical infrastructure and work process and shows the team's high level of professionalism.

"WTA certification is a great independent measure of the effort, the team at Azercosmos has put in over the years to provide our customers with the most robust, efficient and effective teleport services possible," said Mr. Mark Guthrie, Chief Commercial Officer at Azercosmos. "Achieving certification demonstrates our commitment and investment in the people, infrastructure, technology and processes to ensure that we provide world class service by an independent measure".

Mr. Robert Bell, WTA's Executive Director, has also congratulated Azercosmos on this success and noted that receiving the highest

degree WTA certification is a major achievement for a young company like Azercosmos. "We appreciate their willingness to submit their facility, technology and procedures to independent inspection by WTA and congratulate them on the outcome", added Mr. Bell.

It is worth to mention that Azercosmos' Teleport is the only WTA certified teleport in the region.



Take a breath with ROXY

ROXY (Regolith to OXYgen and Metals Conversion), an Airbus-invented process, has successfully demonstrated its capability to produce oxygen and metals from simulated lunar dust. The breakthrough came in autumn this year during a series of laboratory tests. Oxygen is indispensable for all human space activities, and this new ROXY production method, which directly uses Moon dust, could revolutionise human activities on the lunar surface.



ROXY is a molten salt electrolysis technology which can reduce metal oxides and ores into pure metals and alloys, and produce high-purity oxygen. ROXY is based on a combination of key technologies and features brought together in a novel solution, which enables the design of a simple, compact and cost-efficient extraterrestrial production facility. It is therefore ideally suited for a wide range of future exploration missions.



Not requiring additional materials or consumables from Earth – except the ROXY reactor itself – this could be the heart of an integrated value chain using additive layer manufacturing to produce a wide range of products 'Made on the Moon'. Combined with lunar ice, it would even be possible to produce rocket fuel from ROXY metal powder.

The great benefit of using regolith to produce oxygen is that it covers almost the entire lunar surface, so a ROXY factory could be placed almost anywhere. Next step: build and send a ROXY demonstrator to the Moon.



Matti Lepomäki is the new chairman of the Finnish Astronautical Society

Matti Lepomäki has been named the new chairman of the Finnish Astronautical Society. He succeeds Mika Jalava who had been the chairman since 2015. Matti has a Bachelor's Degree in Electric Power. His focus as chairman will be on a membership drive and expanding the Society's range of activities.



Going virtual!

Obviously, the COVID-19 pandemic drastically changed the way how a civil organization like the Hungarian Astronautical Society (MANT) operates. Instead of frequent personal interactions, meetings and public events, safety concerns forced us to move temporarily to the cyberspace. Keeping already an eye on 2024 and our intended candidacy for hosting the IAC in

Budapest, our society was one of the proud exhibitors of the highly successful 71st IAC – *The CyberSpace Edition* in October. In the same month, in connection with the World Space Week (WSW), we organized our traditional Space Day – this year as a virtual event, for the first time. *Satellites improve life* – this was the motto of the WSW and also the main topic of the popular lectures covering practically every aspect of space applications, including communications, meteorology, Earth observation and navigation. We were already very satisfied with the large real-time audience of the on-line event, but the recording that can be viewed later at any time potentially reaches additional thousands of people. As a new initiative generously supported by the Hungarian Ministry of Foreign Affairs and Trade, we launched a national space-themed competition targeting groups of high-school students in November. The first two rounds are going to be virtual, but by the time of the final expected for Spring 2021, the best selected teams will hopefully be able to compete for the prizes in person at a spectacular "real" event. The registration is still open, the questions of the first round are out. We expect around 50 participating teams from the entire country and even beyond.



Unbroken. Path to Dream

The S. Korolev National Space Museum had a new experience of being involved in a film project. "Unbroken. Path to Dream" is a title of a new film combining elements of drama and documentary. It tells the story of Sergei Korolev, an outstanding scientist, rocket engineer and spacecraft designer who was born in Zhytomyr.

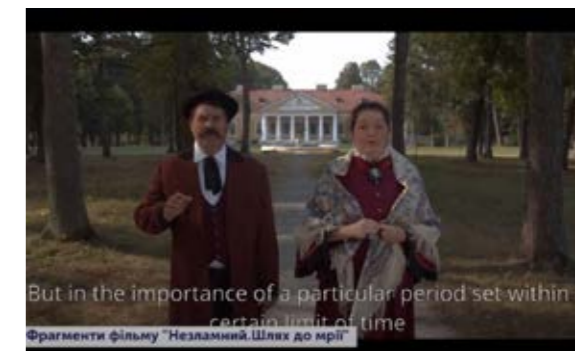
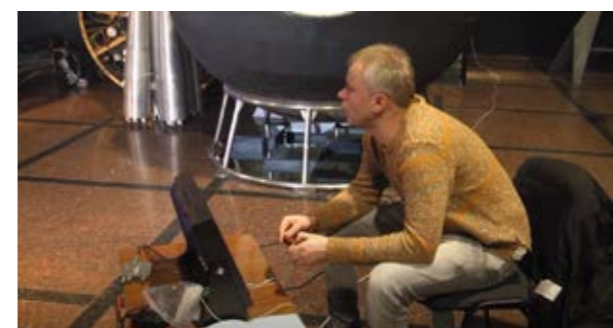
There are at least 4 movies about Korolev by Ukrainian and Russian filmmakers but this is an 'unknown story about the known'. The storyline following different time periods covers Korolev's early years spent in Ukraine and then his life when a young aircraft designer, rocket enthusiast, GULAG prisoner, and the Chief Designer. The film was directed by Petro Avramenko,

Zhytomyr director, Honored Artist of Ukraine. About 70 actors, all of them from Zhytomyr, were involved in the creative process. The filming took place in Berdichev, Khmelnytsky, Odessa, Zhytomyr, and inside the S. Korolev National Space Museum.



The main message is that only a man of unbroken spirit can make wings while in bondage.

Currently, the film production team is preparing its release.



The American Astronautical Society (AAS) is the premier network of current and future space professionals dedicated to advancing all space activities. Part of our mission is bringing professionals together to discuss all things space. As such we host many events every year. Highlighted events include:

von Braun Symposium: The 2020 von Braun Memorial Symposium took place online October 26-28, with a record number of attendees. This conference included discussions on the Artemis program, Human Landing System, human space exploration, workforce and education, policy, international collaboration, and more. Featured speakers included Jim Bridenstine, Carissa Christensen, Kara Cunezeman, Mary Lynne Dittmar, Mike Griffin, Kathryn Lueders, Wayne Monteith, Scott Pace, Jim Reuter, Jody Singer, and more! We are hoping the 2021 conference will be in person.



CanSat Student Competition: Each summer, AAS holds our CanSat small payload design-build-launch competition for university students from around the world. The 2021 competition will look a little different this year, as it will be virtual to ensure the health and safety of our team and volunteers. The top 40 teams will have the opportunity to virtually “launch” their payloads via computer simulation live with judging via Zoom. We are looking forward to another successful student CanSat competition this summer.



Find more information about these and other AAS events please visit astronautical.org/events.



Launch countdown clock is ticking!

International Lunar Observatory Association (ILOA Hawai'i) has contracted Intuitive Machines (IM) of Houston TX to fly its ILO-X payload on the IM-1 Nova-C lander mission set to launch October 11, 2021 on a SpaceX Falcon 9 rocket to Vallis Schröteri, also known as Schroter's Valley (24.53° N, 50.49° W).

ILO-X is a precursor to the flagship Moon South Pole Observatory ILO-1. The ~0.6kg ILO-X instrument, being built for ILOA by Toronto-based Canadensys Aerospace, includes a dual-camera miniaturized imaging suite that aims to capture the first images of the Milky Way Galaxy Center from the surface of the Moon, as well as performing other celestial / Earth / local lunar environment observations and exploration technology validations – including functionality and survivability in the lunar environment.

“The Milky Way Galaxy first view from the Moon with ILO-X could provide a new 21st Century perspective for the human future, like the Earth-Rise first view from the Moon did for Global understandings last century” says ILOA Director Steve Durst – who, along with 27 Board of Directors and global network built through its Galaxy Forum program, has been looking forward to achieving this image since the 2007 founding of ILOA.

We continue our strong support for returning to the Moon to stay, the Artemis program and landing the First Woman on the Moon – as new American leadership emerges.

ILOA is also seeking benefactors for the larger ILO-1 and ILO-2 observations and communications missions under development, which are planned to launch 2022-23.



Getting close to the end of 2020 we feel compelled to look back at this rough and challenging year. Countless events had to be cancelled or postponed because of the pandemic. Nevertheless, **Eurisy** endured and continued to stimulate the uptake of space-based solutions. The term “digital society” has never been so relevant and satellite applications fulfil a crucial role in it:

- A series of articles and events within Eurisy's thematic area of **Space for Health**, showcasing the combined efforts within the space community to tackle the sanitary crisis. From disease modelling dashboards integrating satellite imagery, and tracing apps working with satellite navigation, to satellite communication supporting the eHealth trend.
- Broadband satellite communications deploy eLearning solutions for children living in small and isolated municipalities. Furthermore, Eurisy is part of the **GIS4Schools Project**. This educational programme supports opportunities for all in acquiring and developing STEAM competences and stimulates the use and exploitation of GIS by students in climate actions.
- With more innovative satellite services our urban environments are becoming healthier, cleaner, safer, and more efficient. Maintenance of infrastructure, air pollution monitoring, and energy management are just a few examples of **satellite applications for smart cities**.

Eurisy has an extensive record of activities related to smart communities. In this digital era, satellite data supports a myriad of sectors ranging from **agriculture** to **maritime** and even **sports**. Finally, we invite everyone to join our monthly webinars about **space opportunities for climate challenges**. Learn more on our brand-new website: www.eurisy.eu



The Swiss-Italian group SpaceLand has engaged its spin-off company SpaceLand Africa to follow on its legacy of record-breaking Moon & Mars gravity research flights, carried out in the last decade from the NASA Space Shuttle L.F., for experiments commissioned also by research teams coordinated by Nobel-Prize-winners.

As known, the world's youngest (11 yr-old), oldest (93 yr-old) and the first 100% disabled person (paving the way to Stephen Hawking's flight) to fly as neuro-scientific, bio-tech and biomed test-subjects on SpaceLand weightless and low-gravity flights,

have set records still unbeaten today, while new flight campaigns and experiments are being proposed for cutting-edge bio-manufacturing and macro-molecular compounds research, also addressing COVID-19 antibodies (see L'ingegnere torinese: “La risposta al coronavirus potrebbe arrivare dall'assenza di gravità” - La Stampa)

In particular, the long-term expertise in operations under Mars-gravity conditions is being capitalized to develop a prototype construction concept for a human base on the Red Planet, named SpaceLand Habitat: being designed to maximise advanced ISRU (In-Situ-Resources-Utilization) and NZEB (Near-Zero-Energy-Building) processes, such a first martian “living & working hub” will be developed in a unique, breath-taking natural “Mars-like” demonstration site, featuring an almost 90% chemically compatible soil with respect to martian regolith.



This project would pave the way to a full scale construction of a Mars village as totemic item of the *space-enabled-smart-solutions-based* SpaceLand City, hinging around initial agreements recently signed also with local Municipalities' governments and investors in Asia and in Africa for greener, pollution-free *space-themed* real-estate developments focused on the SpaceLand City design.

This future-facing initiative is merged with what has been presented in Dubai by the then-Head of State of Mauritius, in Her Excellency's capacity of well-known African scientist, for the African version of the SpaceLand Center: this multi-user facility will be installed inside the SpaceLand Habitat, in the outskirts of SpaceLand City, minimizing costs and optimizing goals and objectives, as mentioned at the invitational speech at the United Nations (<https://youtu.be/2RthuFMcdfg>).

Such a cutting-edge construction process will also generate major fall-back opportunities to produce cheaper, faster, more saluber NZEB ISRU habitations supporting low-income populations in developing Countries in Africa, Asia and South America; it will also serve for new fast-built emergency shelters to cope with possible earthquakes or similar calamitous events on planet Earth.

Conceived by NASA/ESA Zero-G Flight Veteran Carlo Viberti, the project is led by the Italian techno-architect Celeste Petraroli (former design supervisor of buildings for the Olympic Games) in synergy with Doct. Enrico Dini and other senior engineers and scientists from Europe, Asia and Africa as members of the SpaceLand Scientific Committee; more details are available on the website of the IAF GNF Space Conversation Series (live on 9 December 2020) here [Spaceland's First 3D-Printed Mars Habitat as Game-Changer in Planetary Exploration Programs](#) (iafastro.org)



From NewSpace to NextSpace

NewSpace captures the strategic, economic and commercial dimensions that the space sector has taken on. The resulting dependence on space, both for public and commercial purposes, makes space an area to be protected. Under these conditions, Dassault Aviation supports the creation of a space police which would monitor the space environment (detection, identification, classification, etc.) and which could, if necessary, serve as an intervention force (injunction, interception, neutralization, etc.). The use of a spaceplane would be appropriate. It would be both a reusable launcher and a reusable, multirole satellite platform, accessible to new users. By 2040, we believe that aerospaceplane propelled by carbon-free hydrogen rocket-engine will carry passengers thousands of km in a matter of tens of minutes. To accelerate the advent of these new projects, which are sometimes disruptive especially in terms of usage, Dassault Aviation is offering a new banner to group them together and accelerate their development: the NextSpace.



SpaceGen Summit

On November 8th 2020, SpaceGen Summit concluded its gathering of 79 participants, coming from more than 23 nationalities! During the 4 day-long event, SGAC proudly collaborated with our different [sponsors and partners](#), inviting experts from across the space industry to provide a unique and dynamic experience to its participants. SpaceGen Summit included breakout sessions, lightning talks, networking activities, keynote speeches and many other online gatherings for our delegates to take part in. If you are interested in catching up with what happened, you can check our [website](#) or watch the different online Keynote and Panels on [YouTube](#) that were hosted during SpaceGen Summit!



SGAC Webinars

During 2020, SGAC has run multiple webinars as a great way for SGAC to connect and engage with our community. SGAC is proud to report that:

- 89 Webinars and online events have been organized since April 2020
- 126 countries reached
- Attendees Average age: 28 years old
- 100 - 1500 viewers

NextGen Summit @ IAC 2020 - CyberSpace Edition

The SGAC, the ISEB, and the IAF SEOC and WD-YPP Committees joined forces to bring a great session dedicated to the Next Generation of space leaders!

Part of the IAC 2020 – Cyberspace Edition 's programme, and sponsored by Blue Origin, the NextGen Summit has assembled a mix of fun and engaging online talks and activities!

We are proud to report that we had 4 hours of live content with 40 speakers and panelists (70% women), interactive sessions with live polls and a space trivia quiz for a total of more than 1700 viewers! [Check out the event](#) again!



Royal Netherlands Aerospace Centre (NLR) prepares for CubeSat thermal challenges

In August 2020 Royal NLR finalised prototype testing on their mini mechanically pumped loop (mini-MPL). The NLR mini-MPL is developed for CubeSats as a new standard solution for heat dissipation problems. It transports the heat dissipated at hot spots to thermal radiators where the heat is radiated away into space. The heart of the system is the multi-parallel micro-pump (MPMP), which provides a low-mass MPL solution with high reliability due to multiple micropumps in parallel for generating the flow. This design avoids the single point of failure of one pump in the loop. The individual micro-pumps are piezo-driven displacement pumps with passive micro-valves. The flat design is compatible with the CubeSat standard and allows for similar performance on ground and in orbit.



Detail of the multi-parallel micro-pump

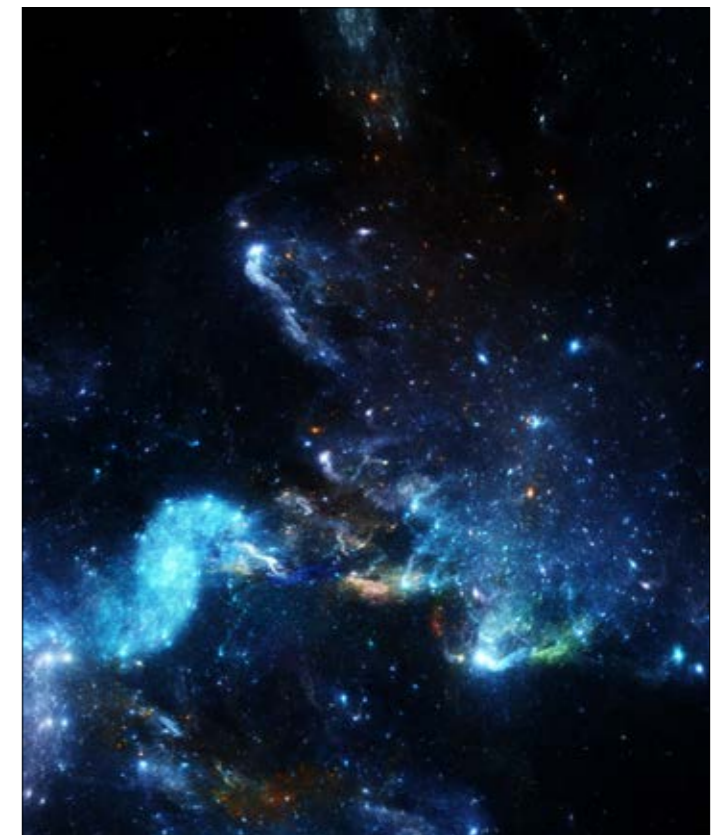
The prototype tests demonstrated a pump mass flow of 500 mg/s at a 140 mbar pressure head and a heat transport capability of 20 Watt. The mini-MPL has a modular set-up and is therefore easy upgradable to 100 W and even 800 W when the two-phase version of the mini-MPL version is introduced.

In-orbit performance of the mini-MPL can be predicted with a modular modelling application in the space thermal analysis tool ESATAN-TMS developed by NLR and ISIS. NLR intends to qualify the mini-MPL under ESA contract in close co-operation with DEMCON Kryoz for series production and ISIS for system sales next year. Learn more in this [recently published article on mini-MPL](#).



Mini-MPL in CubeSat

For further information visit www.nlr.org



Interview with 4 newly appointed IAF Vice-Presidents and 2 IAF Special Advisors

Interview with Andreas LINDENTHAL, IAF Vice-President for IAF Global Networking Forum



Holding a degree in aerospace engineering, I started my professional experience within Airbus Space in Immenstaad at Lake Constance. Since then I had different positions within the areas of Satellite Systems, Spacecraft Equipment, Development and Production and was located at various aerospace sites within Germany and France. After a short period in the aviation business, I became member of the Executive Committee of OHB System AG and could act as Chief Operating Officer for more than five years. Since year end 2019, I am appointed as Head of Space Systems “Business Operations” and “Spacecraft Equipment” and act as Head of Airbus Space Systems Germany.

Plans and Expectations as IAF Vice President on my respective portfolio:

I feel honored to be part of this powerful, global environment of the International Astronautical Federation. In my role as Global Networking Forum Coordinator, I am looking forward to creating and strengthening networks, connecting people and sharing our passion for space technology and programs. I want to contribute that we are crossing all kinds of borders, being it generations, genders, continents, and cultures. Space has demonstrated to be one of the most efficient means to bring nations and people together. IAF can help to create additional momentum in this direction.

Interview with Nobu OKADA, IAF Vice-President for Space Economy and Sponsorship



Nobu founded Astroscale in 2013 on the desire to address the growing threat of space debris. Using personal seed funding, he grew the “Space Sweepers” team from Singapore to Japan, the UK, the US, and Israel while raising \$191M in capital. Nobu is a co-chair of the World Economic Forum’s Global Future Council on Space and a Fellow of the Royal Aeronautical Society. Previously, Nobu was an IT entrepreneur and strategy consultant across Asia. He also worked for McKinsey & Company and Japan’s Ministry of Finance. He has a BSc from the University of Tokyo and an MBA from Purdue University.

Plans and Expectations as IAF Vice President on my respective portfolio:

As Vice President of Space Economy and Sponsorship for the next three years, my goal is to enhance the space ecosystem by bringing together the public sector, industry, and academia. I also hope to involve individuals and organizations who have an interest in the space sector, but who have yet to fully commit. I would also like to contribute to the IAF as a representative of Japan and the broader Asian region, be a vocal advocate for orbital sustainability, and speak with a clear voice for the emerging elements of the space sector.

Interview with Anthony TSOUGRANIS, IAF Vice-President for Honours and Awards



Anthony Tsougranis has worked as an International Programs Specialist at NASA since 2003. He has centered his career on the building of “bridges”, the identification of “win-win” scenarios and the promotion of international partnerships for the advancement of science and exploration, and the improvement of the human condition. He holds a Ph.D. in Political Science and a Master of Arts in International Relations from the Maxwell School of Citizenship and Public Affairs at Syracuse University. He received his Bachelor of Arts, Magna Cum Laude, in Political Science with a minor in Economics from the University of Massachusetts at Boston.

Plans and Expectations as IAF Vice President on my respective portfolio:

The IAF honors and awards provide an important opportunity to acknowledge and celebrate each year individuals in our community worthy of recognition. It is important to step back and reflect on our accomplishments and successes and to honor those who have propelled us forward. As the IAF VP for Honors and Awards I intend to work with all of you to ensure that we continue with this fine tradition. As an international relations practitioner, I especially look forward to working with the community to stand up the “Excellence in International Cooperation Award”, to be inaugurated at the 72nd IAC in Dubai.

Interview with Xiaojun WANG, IAF Vice-President for Societies and Museums



Dr. WANG Xiaojun is the president of China Academy of Launch Vehicle Technology. He has been engaged in space industry for 25 years and has led the development of several launch vehicles in China. He is a famous expert in launch vehicle system design, trajectory design and structural dynamics. He had taken charge of the system design of Long March-2F and Long March 5, and also led the development of Long March-7 in China. He is an IAA member and has led and joined 4 IAA study groups. He is enthusiastic about participating and organizing international space activities.

Plans and Expectations as IAF Vice President on my respective portfolio:

The world space develops and changes with each passing day and the next three years are full of opportunities and challenges. I will, under the leadership of the President, promote the space societies to organize international or regional space academic activities, support the space museums and science centers to carry out high-end space science education activities, push forward the space history activities to spread space culture and spirit, and coordinate China’s space community to participate in the international space cooperation. I will try my best to develop IAF through multiple channels, at various levels and in different fields.

Interview with Giorgio SACCOCCIA, IAF Special Advisor to the President (International Space Forum & Developing Countries and Emerging Nations)



I am Giorgio Saccoccia, a passionate space professional operating in this sector since the mid 80’s. My background as Aerospace Engineer with a Master in Business Administration offered me the opportunity to develop my career in industry, the European Space Agency and, lately, at the Italian Space Agency, which I have the honour to lead currently as its President.

I enthusiastically support IAF since 1999 and I am pleased of having served the Federation as the Chair of one of its most active Technical Committees for many years (the Space Propulsion TC) and, most of all, recognising the leading role of IAF in bringing together the world’s space community under a common set of principles and goals.

Plans and Expectations as IAF Vice President on my respective portfolio:

I am very glad to be able to contribute to the IAF development by accepting the role of the Special Advisor to the President for the International Space Forum (ISF) initiative and for developing and emerging countries. My plan for the next years is to strengthen the ISF initiative born in 2016 with a stronger reference to the sustainable development goals of the UN 2030 agenda. In the 2021 edition, the ISF will gather Ministers of Research and Education and Space Authorities of southern-east Asia countries, who will meet in Kuala Lumpur (Malaysia) to “Empower Space Science and Technology for Sustainability and regional Economy”. In 2022 the ISF will be focused on the Middle East region. I am convinced that more countries in the world will be aware of the importance of space education and technology to achieve the 2030 agenda goals, more societies and populations will take advantage of them.

Interview with Lionel SUCHET, IAF Special Advisor to the President (IAC Resilience)



Lionel Suchet graduated from “Ecole Polytechnique” Paris and “Sup’Aero” Toulouse. He was deeply involved in Manned Space Flights from the very beginning of his career at CNES (1989) and was Project Manager for five manned missions performed onboard MIR and ISS.

He became in 2004 responsible for all French scientific missions and then, in 2008, Assistant Director in charge of all orbital CNES space projects.

From 2011 to 2015, he was Deputy Director of Toulouse Space Centre before becoming Director for a new CNES directorate dedicated to Innovation, Applications and Science.

From 2017, he has been the CNES Chief Operating Officer.

Plans and Expectations as IAF Vice President on my respective portfolio:

The world is changing fast and not only because of this terrible pandemic we have to face: Climate change and a digital revolution which is far to be over will deeply change our lives. Space plays a strong role in these societal challenges but at the same time, worldwide events such IACs may have to change drastically in the coming years and again not only for sanitary reasons: Young generation become reluctant to take planes because of Planet pollution and one could think that digital solutions allow to meet without presential events. As often, all this can be seen as threats or opportunities. How to make IACs more useful tomorrow for facing these new challenges? To propose ways forward on this topic is how I see my role as “Special Advisor of the President for IAC resilience”.



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The next IAF newsletter will be issued in March 2021