

WORKING GROUP

Co-Chairperson

Co-Chairperson

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ORGANIZING COMMITTEE

PROFESSIONAL-AMATEUR RELATION IN ASTRONOMY

Aniket Sule

Timothy Spuck

vacant

Yuko Kakazu - USA and Japan

Ilya G. Usoskin - Finland (liaison of WG with IAU-EC)

John Hearnshaw - New Zeland

Timothy Spuck - USA Aniket Sule - India

Mayra E. Lebron - Puerto Rico

Clementina Sasso - Italy

Beatriz Garcia - Argentina

Antonia Valera Perez - Spain

Kaz Sekiguchi - Japan

Moein Mosleh - Iran

Boonrucksar Soonthornthum - Thailand

**Kelly Blumenthal - USA and Japan (liaison with IAU
OAO)**

TRIENNIAL REPORT 2021-2024

1. Background

The IAU working group for professional-amateur relations in astronomy (here on Pro-Am WG) was formed in April 2021 as a WG under the Executive Committee. The IAU Strategic Plan 2020-30 stated that connecting professional and amateur astronomers was one of its goals for the decade (see Strategic Plan, Goal 4). This is also an integral mission of the IAU Office for Astronomy Outreach. The aims of the Pro-Am WG are:

- to promote research collaborations between IAU professional astronomers and research-capable amateurs,
- to organize workshops for amateur and professional astronomers (possible hybrid or virtual) approximately every two years, starting in 2023,
- to promote the ‘Meet the Astronomer’ program of the OAO, whereby IAU members give talks to amateur societies or associations,
- to organize an IAU symposium devoted to developing pro-am relations.

The initial Organizing Committee (OC) for the WG was established as follows: John Hearnshaw (New Zealand, co-chair), Lina Canas (Japan and Portugal, liaison with IAU Office for Astronomy Outreach), Beatriz Garcia (Argentina), Stella Kafka (USA), Yuko Kakazu (USA and Japan, secretary), Suzana Filipecki Martins (Japan – IAU Office of Astronomy for Outreach), Moein Mosleh (Iran), Mirjana Povic (Ethiopia), Kazuhiro Sekiguchi (Japan),

Boonrucksar Soonthornthum (Thailand), Aniket Sule (India, co-chair), Timothy Spuck (USA), Ilya Usoskin (Finland, executive Committee liaison), Antonia Varela (Spain). At the end of 2021, Povic and Kafka both resigned from the WG. They were replaced by Mayra Lebron (Puerto Rico) and Clementina Sasso.

2. Activities within the past triennium

Since its creation in 2021, the Pro-Am WG has been developing ways to foster collaborations between professional and amateur astronomy communities. The Pro-Am WG started with a global survey of the distribution of amateur astronomers and observing equipment accessible to them. In 2023, it launched the Pro-Am Research Collaboration (PARC) network through the IAU portal and started listing project opportunities. As a follow-up, Pro-Am WG organised a 3-day workshop at Indian Institute of Technology (IITB), Mumbai, India, from 1-3 December 2023, primarily aimed at Amateur Astronomers.

2.1. Survey of Amateur Astronomers

The pro-am WG conducted a survey of amateur astronomers, amateur astronomy associations, and IAU Astronomers to explore their experience and interest in professional-amateur astronomy research collaboration. Data was collected from mid-December 2021 through February 2022. A total of 941 amateurs (88% men, 11% women) and 256 professional (76% men, 21% women) astronomers from around the world completed the survey. A summary of survey results was prepared by Tim Spuck, and examples of key findings are as follows:

- Approximately 79% of amateurs are either extremely interested or very interested in working with IAU professional astronomers on collaborative research or instrument building projects,
- Approximately 59% of professionals are either extremely interested or very interested in working with IAU professional astronomers on collaborative research or instrument building projects,
- Approximately 71% of amateurs are either extremely interested or very interested in participating in the “Meet the Astronomers” program,
- Approximately 70% of professionals are either extremely interested or very interested in participating in astronomy outreach and public awareness activities,
- Approximately 49% of professionals are either extremely interested or very interested in participating in the “Meet the Astronomers” program,
- Approximately 77% of amateurs are either extremely interested or very interested in attending a virtual workshop focused on professional and amateur astronomy collaborations,
- Approximately 60% of amateurs are either extremely interested or very interested in attending an in-person workshop focused on professional and amateur astronomy collaborations,
- Approximately 47% of professionals are either extremely interested or very interested in attending a virtual workshop focused on professional and amateur astronomy collaborations,
- Approximately 31% of professionals are either extremely interested or very interested in attending an in-person workshop focused on professional and amateur astronomy collaborations.

In addition to the survey results, a database of many of the principal amateur astronomical societies, associations and groups around the world has been established. Following the survey, we also established a WG membership at large from IAU members who wish to stay informed of our activities. This group is kept informed of activities through Basecamp notifications. Pro-Am WG will continue to promote and facilitate their participation in pro-am activities.

2.2. PARC

Through the Pro-Am Research Collaboration (PARC) project, the Pro-Am WG wanted to connect professional and amateur astronomers with the aim of promoting research collaborations, and promoting and facilitating the integration of professional astronomers within amateur societies. As a first step, we invited IAU members having scientific projects in which amateurs could be involved to register them at the PARC portal. The invitation for projects was done through an email sent by the IAU. They had to complete a questionnaire that is always available on our website. To date, we have 13 projects in total (two of them are concluded) and the platform stays open for new submissions. View the PARC at https://www.iau.org/science/scientific_bodies/working_groups/professional-amateur/.

As a second step, we invited amateur astronomers to register to one or more of the PARC projects on the website through a questionnaire available at the PARC Portal. Amateur astronomers were reached from the list Pro-Am gathered during the survey and through the OAO NOCs. We have had 73 amateur astronomers reply to the call. Their requests are automatically forwarded to the scientific Principal Investigator of the project. We are now preparing a survey to thank the astronomers for participating in the PARC program and to check in with them to get an update on how their projects are going. We plan to conduct the survey from time to time (quarterly). This will help us better track project success and what needs the astronomers might be having to support their collaboration with amateurs. An announcement of the PARC program will be promoted twice a year to the IAU members for invitation for new PARC project and an announcement to the amateur community about the PARC projects will be send at least two time per year.

2.3. Pro-Am Workshop

Following the PARC program, the Pro-AM WG organised a 3-day workshop at Indian Institute of Technology (IITB), Mumbai, India, from 1-3 December 2023, primarily aimed at Amateur Astronomers (<https://khagolmandal.com/ProAm2023.html/>). Clementina Sasso (pro-am WC member) was part of the organizing committee and participated in the meeting as well as Aniket Sulu (pro-am WG co-chair). The workshop was attended by 75 amateur astronomers. On the first day the workshop started with a session by Akshat Singhal on the use of Python in astronomy. It was followed by Joe Phillip Ninan who then showed how amateurs can search for exoplanets in publicly available data using Python codes. In the last session of the day, Varun Bhalerao discussed how amateurs can assist in the continuous monitoring of optical transients using 30-40 cm telescopes. This session also included a live demonstration of observation with GROWTH-India telescope in the Himalayas. Following the excellent results from this first meeting, the Pro-Am WG has started discussions on future locations for the next Pro-Am workshop.

3. Conclusion and future plans

The Pro-Am WG is introducing the IAU to a large number of amateur astronomers from around the world and we are making positive steps to promote collaboration between professionals and amateur astronomers.

The survey revealed great interest in collaboration between professional and amateur astronomers. Building off this interest, we are also working to establish a robust WG membership at large including IAU members who wish to be members of the WG and stay informed of our activities. Possibilities of new collaborations with amateurs will be discussed and promoted with all Pro-Am WG members.

The session of the Pro-Am WG at the IAU-GA in Cape Town is a joint session with OAO. With this we expect to promote discussions between professional astronomers interested in collaborating with amateur astronomers and amateur astronomers interested in collaborating with professional astronomers. Having the session together with OAO facilitates the interaction between amateurs that are participating in the OAO sessions and professionals. The WG will continue to monitor progress being made by the various PARC projects via surveys and follow-up emails with professional and amateur participants. That will help the WG better support the needs of projects and facilitate collaboration. We are planning to promote PARC twice per year with the IAU membership encouraging the submission of new projects. In addition, recruitment of amateurs to join active projects will take place at least twice per year, and more often if needed. We will also work to establish an annual Pro-Am Collaboration Workshop. Future workshops will take place at strategic locations to promote maximum engagement by both amateurs and professionals.

4. Notes and References

[1] IAU Executive Committee Working Group (WG) on Professional-Amateur Relations page: https://www.iau.org/science/scientific_bodies/working_groups/professional-amateur/ [2] Pro-Am Research Collaboration (PARC) page: https://www.iau.org/science/scientific_bodies/working_groups/professional-amateur/ [3] Indian Institute of Technology (IIT-B) website: <https://www.iitb.ac.in/> [4] GROWTH-India telescope website: <https://sites.google.com/view/growthindia/> [5] One Million Galaxies Project website: <https://csa.pkc.org.in/> [6] Khagol Mandal web address www.khagolmandal.com [7] Krittika Astronomy Club the website of the student astronomy club of the IIT-B: <https://krittikaiitb.github.io/> [8] ProAm Astronomy Meeting 1-3 December, 2023, Mumbai, India: <https://khagolmandal.com/ProAm2023.html/>

Mayra Lebr'on, Clementina Sasso, Timothy Spuck and Aniket Sule
Present and Past co-chairs