



IAU Division G: Annual Report 2023

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- DP Division President 2021-24
- DVP Division Vice-President 2021-24
- DS Division Secretary 2021-24
- G1-5 Commission President 2021-24
- DA Division Advisor 2021-24

This is the third and final annual report of the Division G Organizing Committee for the 2021-24 triennium. It reports on the time period from Jan 1, 2023 through Dec 31, 2023.

Membership

As of end 2023, there are 3881 full and 401 junior members of Division G, which constitutes a 2.5% annual increase in full members and a 11.7% annual increase in junior members; 321 members of Commission G1 (Binary and Multiple Star Systems); 245 members of Commission G2 (Massive Stars); 353 members of Commission G3 (Stellar Evolution); 238 members of Commission G4 (Pulsating Stars); and 262 members of Commission G5 (Stellar and Planetary Atmospheres).

In addition, there are 3 inter-division commissions: (1) the G-H commission on Planetary nebulae (86 members); (2) the G-H-J commission on stellar clusters throughout cosmic space and time (237 members); and (3) the D-G-H-J commission on Galaxy spectral energy distributions (231 members).

Finally, there are 3 working groups associated with Division G: (1) Active B stars (123 members); (2) Ap and related stars (74 members); and (3) Red giants

and supergiants (17 members).

Division activities

Quarterly newsletter

In an effort to reach our membership and to continue with the legacy of the last triennium, the current OC will issue a quarterly newsletter with pertinent events, notices and deadlines. These newsletters will be posted online in pdf form and circulated by email through the regular IAU information channels and posted on the Division G website. The next issue is expected in June 2024.

Division G Slack Space

To foster communication and exchange of information further, Division G has an established slack workspace available at <https://iau-divg.slack.com>. The goal behind this communication channel is to allow two- and multi-way communication for our members, such as information on meetings/workshops/seminars/colloquia, science highlights that pertain to our division, discussing any concerns/suggestions/complaints, etc.

Division G ombud

The IAU embraces equality, diversity and inclusion, and condemns all forms of non-ethical behavior such as bullying, harassment and malpractice. Unfortunately there may be situations when members feel treated unfairly or disrespected, or when they see someone else being treated that way. To provide a secure channel of communication for our members to express these concerns anonymously, be it on behalf of themselves or as an active bystander, we in Division G have elected a JEDI (Justice, Equity, Diversity and Inclusion) representative for our division, Dr. Jacco Th. van Loon. The JEDI task is to liaise with and address any Division member grievances as they arise. Members can send non-anonymous reports to divG.ombuds@gmail.com; only two Steering Committee members have access to it: the sitting president and the sitting JEDI representative. There is also an @ombuds handle on slack that can be used for the same purpose.

PhD Awards

The IAU PhD Prize recognizes outstanding scientific achievement in astrophysics around the world. The Division G has the opportunity to award a stellar physics candidate who has carried out the most great work and has defended his/her PhD between the 16 December 2021, and 15 December 2022. The Steering Committee received 11 proposals; after careful review, the PhD award was conferred to Dr. Antoine Bédard from the Université de Montréal in Canada, on his thesis titled “Characterization and modeling of the spectral evolution of hot white dwarf stars.” This year’s at-large PhD prize was conferred to Dr. Naira Azatyan from the Byurakan Astrophysical Observatory in Armenia, on her thesis titled “Search and study of young infrared stellar clusters.” For the year 2023 the Steering Committee received 7 proposals; after careful review, the PhD award was conferred to Roman Gerasimov from the United States, on his thesis titled “Evolution of Atmospheres and Chemistry of Ancient Stellar Populations.” The awardees are invited to present their dissertations at the upcoming IAU General Assembly.

Division G Steering Committee did not find it appropriate to confer honorable mentions.

Selection of the 2025 Symposia

We received proposals for 4 symposia in 2025. The Steering Committee ranked all proposals and was largely unanimous in their decision to support the proposals by Dr. Aida Wofford: “Massive stars across red-shifts in the era of JWST and large surveys,” by Dr. Hyung-Mok Lee, “Compact objects and binaries in dense stellar clusters,” and by Dr. Maura McLaughlin: “Neutron stars: a multi-wavelength multi-messenger perspective.” The remaining proposal garnered support but the steering committee identified areas of improvement that were communicated to the proposers.

IAU General Assembly in Cape Town, SA

The XXXII IAU General Assembly in South Africa will take place from Aug 6-15, 2024. The meeting website is available at <https://astronomy2024.org>. Division Days will be held on Friday, Aug 9, and on Monday, Aug 12, 2024.

In preparation for the Division Days, the Steering Committee identified the following topics as timely and important for in-person discussion:

- star formation;
- young and active stars;
- binary stars;
- massive and exploding stars;
- stellar remnants;
- stellar clusters;
- stellar habitability; and
- stellar physics with general relativity.

Division G received 140 proposed abstracts for oral and poster presentations; due to time constraints, the program will feature 2 invited (PhD award) talks, 8 invited contributions, 28 contributed talks, and 93 poster presentations. An excerpt from the tentative program is given in Table 1.

Presenter	Title
Prša/Chadid	Division G status report
Annarien Headley	Investigating triggered star formation scenarios in Galactic star-forming regions
Naira Azatyan (PhD prize)	Search and study of young infrared stellar clusters
Lynne Hillenbrand	Hour-to-Decade+ Variability in Young Stellar Objects
Maria Luiza Linhares Dantas	Deciphering Super-Metallicity, Lithium Depletion, and Radial Migration in the Vicinity of Our Solar Neighborhood
Ellen Costa de Almeida	Abundances of Bioessential Elements on Solar-type Stars Using High Resolution Spectra
Paulo Santos	Fine Structure of the $H\alpha$ Age-Chromospheric Activity Relation in Solar-Type Stars
Adriana Valio	Unveiling Starspot Penumbra from Exoplanet Transit Photometry
Christopher Tout	Thorne-Zytkow Objects
Max Briel	Binary Population Synthesis: a case for detailed binary models
Christopher Corbally	Weird Binaries Under Surveillance: TU Tau and HD 5501
Kelly Hambleton	Asteroseismology vs Binarity: the battle for the old red stars
Anya Samadi-Ghadim	The tango of the rotation and pulsations in KIC7756853: a Kepler Hybrid δ Sct- γ Dor binary system
Geraldine Peters	Stellar Archeology of the Be + sdO Binaries
Antoine Bédard (PhD prize)	Characterization and modeling of the spectral evolution of hot white dwarf stars
Shinjirou Kouzuma	A simple method using the derivatives of light curves for estimating the mass ratios of overcontact eclipsing binaries
Ronald Samec	Extreme mass ratio magnetic solar type binaries, NSVS 6429576, GDS J1139444-611732, V1115 CAS, TYC 2402 0643 1
Lee Townsend	10 years of optical spectroscopic monitoring of Be/X-ray binaries with the Southern African Large Telescope
Vallia Antoniou	A Very Large Program with Chandra: investigating the metallicity effect on the formation and evolution of young X-ray binaries
Koushik Sen	Massive Algols as whetstones for the progenitors of stripped-envelope supernovae and gravitational wave sources
Luqian Wang	Detection and Characterization of sdO companions of massive stars
Zsolt Keszthelyi	Evolutionary models for the most massive stars known in the Universe
Atsuko Nitta	Massive and/or Magnetic: That is the question
Lorenzo Roberti	Zero and Extremely Low-metallicity Rotating Massive Stars: Evolution, Explosion, and Nucleosynthesis Up to the Heaviest Nuclei
Jorick Vink	X-shooting ULLYSES: massive stars at low metallicity
Thomas Nordlander	The oldest stars in the Large Magellanic Cloud
Grace Telford	New Observational Insights into the Astrophysics of Extremely Metal-Poor O Stars
Velile Douglas	Investigating the Astrosphere of λ Cephei: Effects of Relative Velocity and ISM Magnetic Field Strength
Paul Scowen	The Polstar FUV Spectropolarimetry Mission to Understand the Role of Rotation in Massive Star Evolution
Willice Obonyo	Radio emission from Massive Protostars in the SARA0 MeerKAT Galactic Plane Survey
Calum Morris	Discovery of a Previously Unknown Population of Eruptive Class I YSOs, within Cygnus-X
Xiang-Gao Wang	Recent observations of Supernova associated Gamma-Ray Burst

Table 1. Division G Days program at the IAU General Assembly 2024 in Cape Town.

Presenter	Title
Daichi Hiramatsu	Multiple Peaks and a Long Precursor in the Type II _n Supernova 2021qqp
Quentin Parker	Making a HASH* of it: strange galactic alignments and solving the sulphur anomaly in planetary nebulae
Atsuko Nitta	Towards the Understanding of the Largest White Dwarf Evolution Mystery, the DB Gap
Paul Barrett	Submillimeter observations of the white dwarf pulsar AR Sco
Jun Yang	High Resolution Spectra of the Galactic Binary Pulsar 4U 1907+09
Brian Chaboyer	The Absolute Age of Globular Clusters
Shuichi Yokoyama	Stellar Physics and General Relativity

Table 1. (continued) Division G Days program at the IAU General Assembly 2024 in Cape Town.

In memoriam

We are saddened to report the passing of the number of IAU members affiliated with Division G. Their names and home countries are given in Table 2.

Deceased member	Home country
Dr. Wassaburo Unno	Japan
Dr. Adela Ringuelet	Argentina
Dr. Milcho K. Tsvetkov	Bulgaria
Dr. Stephen A. Drake	United States
Dr. Brian Warner	South Africa
Dr. Frank Shu	Taiwan
Dr. Norair D. Melikian	Armenia
Dr. Mohammad Heydari-Malayeri	France
Dr. Nikolai G. Bochkarev	Russia
Dr. Italo Mazzitelli	Italy
Dr. Jean-Pierre Swings	Belgium
Dr. Amelia F. Wehlau	Canada
Dr. Boris V. Somov	Russia
Dr. James B. Kaler	United States
Dr. Thomas R. Marsh	United Kingdom
Dr. J. Don Fernie	Canada
Dr. Tonu Kipper	Estonia
Dr. Edwin van Dessel	Belgium
Dr. Ivan Robert King	United States
Dr. Vasily Gvaramadze	Russia
Dr. Victor G. Kornilov	Russia
Dr. Dieter Reimers	Germany
Dr. Dimitri Pourbaix	Belgium

Table 2. Deceased Division G-affiliated IAU members.

Deceased member	Home country
Dr. Zdravka Kraicheva	Bulgaria
Dr. Arved Sapar	Estonia
Dr. Wilhelm Kley	Germany
Dr. Hwankyung Sung	Republic of Korea
Dr. Alejandro Feinstein	Argentina
Dr. Arlo U. Landolt	United States
Dr. Claude van't Veer-Menneret	France
Dr. Rodolfo H. Barba	Chile
Dr. Alexander V. Loktin	Russia
Dr. Erwin Sedlmayr	Germany
Dr. James W. Truran	United States
Dr. Arcadio Poveda	Mexico
Dr. Szabolcs Barcza	Hungary
Dr. Kazimeras Zdanavičius	Lithuania
Dr. François Spite	France
Dr. Guy Pooley	United Kingdom
Dr. Carlos Alberto Torres	Brazil
Dr. Gavril Grueff	Italy
Dr. David F. Grey	Canada

Table 2. (continued) Deceased Division G-affiliated IAU members.