IAU Women in Astronomy WG activities and survey results



Mamta Pommier (chair)

and on behalf of IAU Women in Astronomy Working Group

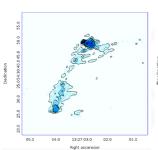
Ph.D(2007), Habilitation(2019), member of EU commission expert in Radio Astronomy CNRS/Laboratoire Univers et Particules de Montpellier, France

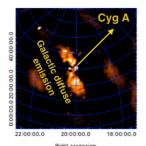
French national & low frequency Radio Astronomer working on fixed term contracts on SKA & pathfinders projects in France for 15 years!

Summary of Research activities in last 20 years (with 15 years in France)

1. Science results (2003-2006, Ph.D., 2006-now fixed term contracts)







Galaxy clusters and AGNs with GMRT, LOFAR, NenuFAR- SKA Pathfinder

2. Grants/Funds (2003-now):

10 (Dutch, French, and Indian funding organizations)

4. <u>Teaching (2010-now):</u>

- -Universities and Institutions.
- -Leading International Exchange programs

Accueil > Le CRAL > Travailler au CRAL

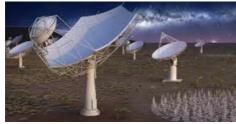
Programme d'échange franco-indien

publié le 23 juillet 2019, mis à jour le 15 octobre 2020



Research **Activities**

- 6. Preparation for the Square Kilometre Array Science (2014-now):
- -Scientific activities- Several chapters in SKA White Book,
- -SKA Regional Center Steering Committee member-science use case review and system requirements team member,
- -SKA working group and executive committee(IND) meetings.
- -PI of 3 science projects (Galaxy Clusters & AGNs)





3. Instrument commissioning results (2007-now) European Square Kilometre Array (SKA)-pathfinders (LOFAR - 10-240 MHz, NenuFAR -10-85 MHz)





- 5. Training and supervision of research-work related to the SKA and pathfinders (2010-now)
- -20-Graduates, Master, PhD students, Postdocs
- -25-International schools and conference (EAS, Franco-Indian, IAU) in Radio and multi-wavelength Astronomy & Outreach
- 7. Referee member (2016-now):
- -Observation & funding proposals (EU Commission, HORIZON-MSCA, IAU)
- -Journals, Editorial Board member
- -Ph.D Thesis. Master projects



8. Outreach (2017-now):

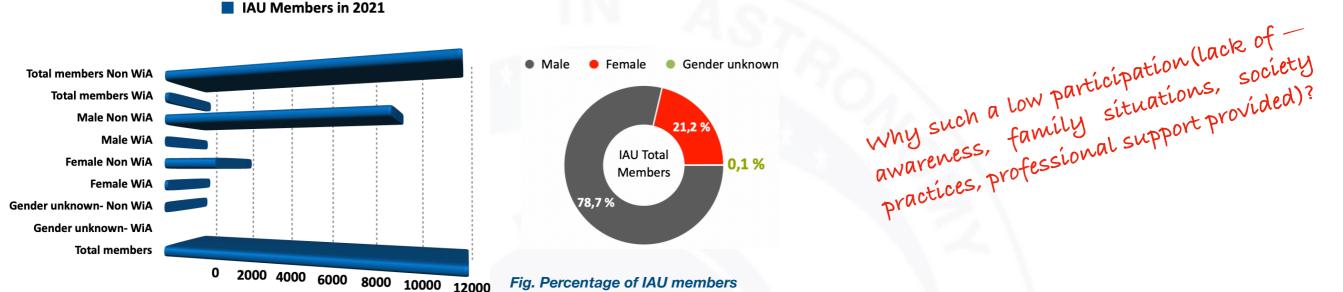
Outreach activities at the University, observatory open days, and International Astronomical Union

9. Support for Women career in STEM (2019-now): International Astronomical Union Women in Astronomy & Société des femmes chercheuses à l'université Lyon 1

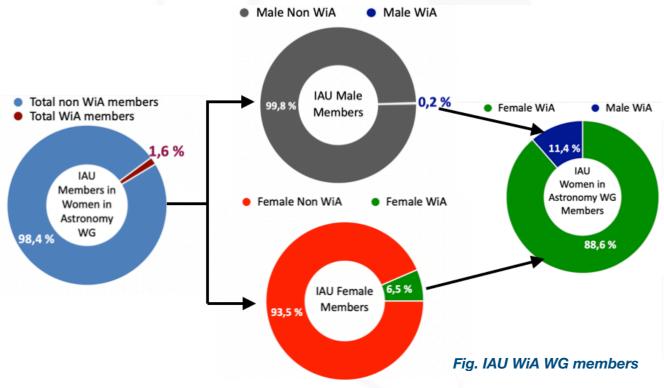


-Women are under represented in STEM - lack of awareness, training, family situations, society practices, support, funds, etc.?

(https://www.iau.org/static/science/scientific_bodies/working_groups/122/IAU-WinA-Ensemble-issue1-Dec2021.pdf







Number of members

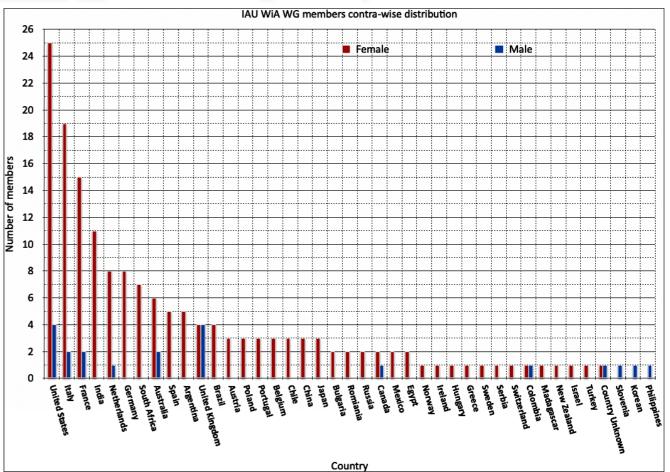
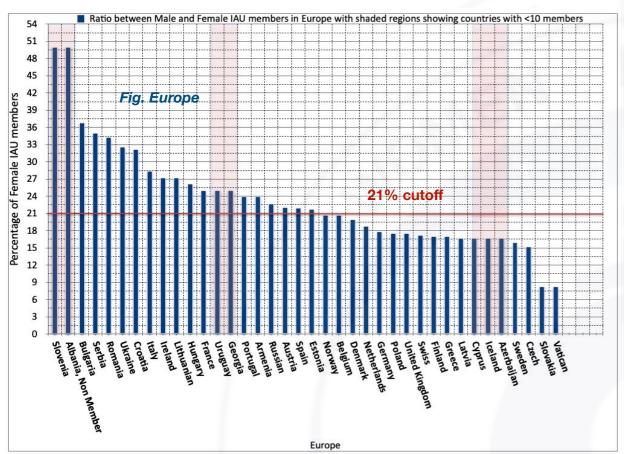
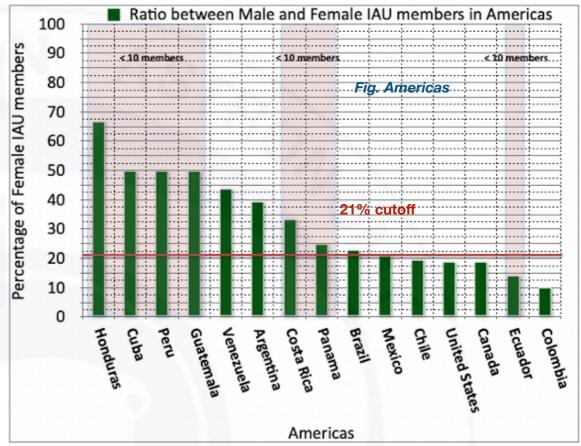
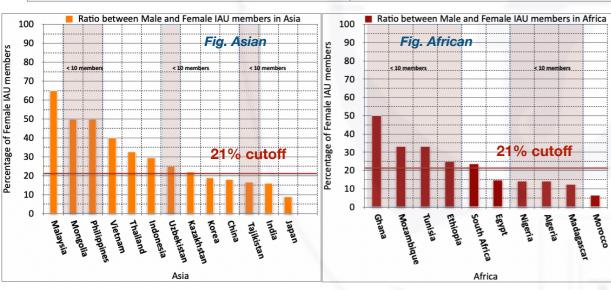


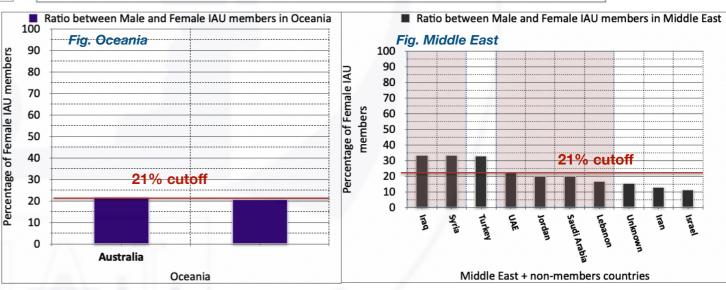
Fig. IAU WiA WG country-wise distribution of members

Only 21% of women researchers from all over the world





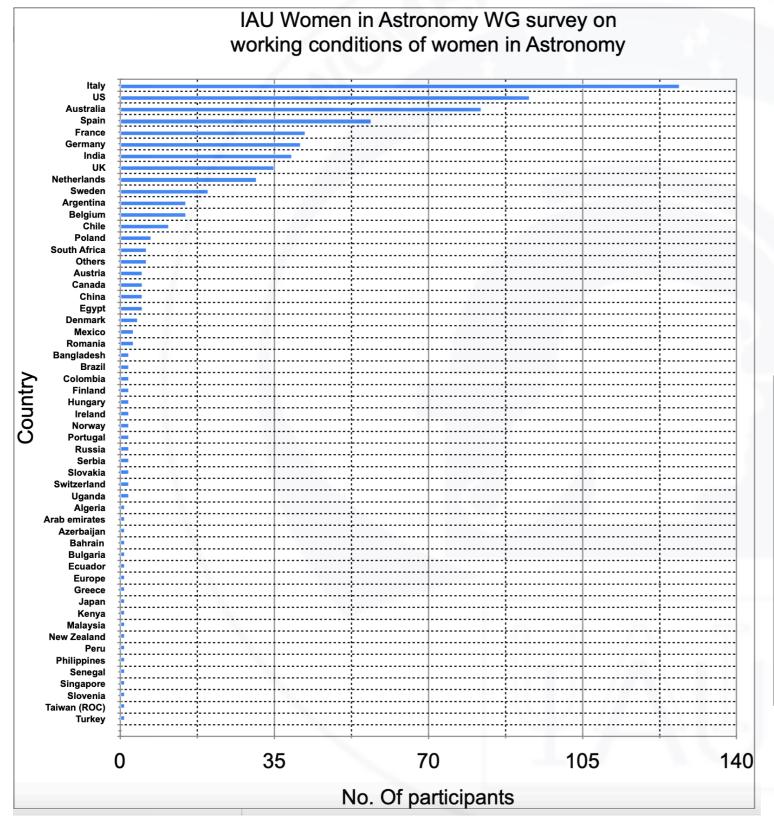




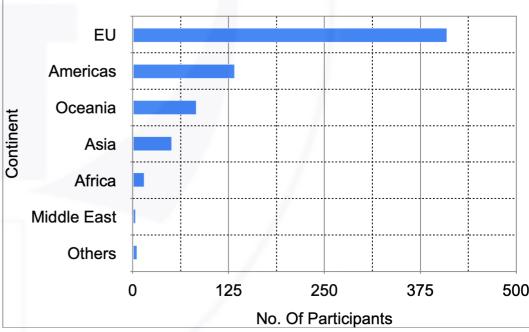
Why such low cut off (lack of - awareness, family situations, society practices, professional support provided) and getting further down with the Covid 19 impact?

Gender imbalance seen in all the continents, points towards a need for significant efforts to increase the participation of women researchers within the IAU especially in the decision-making, funding and steering committees roles in-order to secure their role and future in academia.

Fig. IAU WiA Survey Series-1 country-wise distribution of participants



IAU Women in Astronomy WG survey on working conditions of women in Astronomy



>50% participants from EU countries

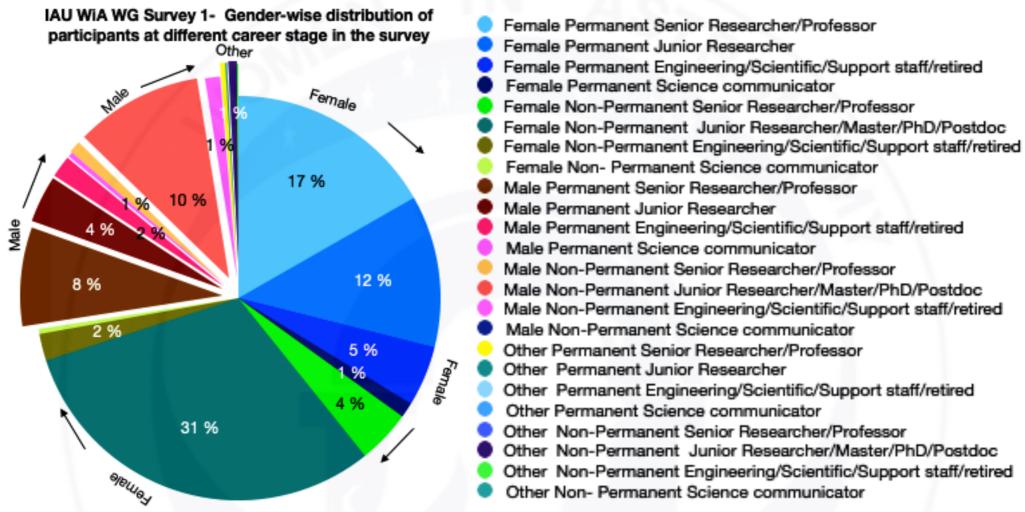
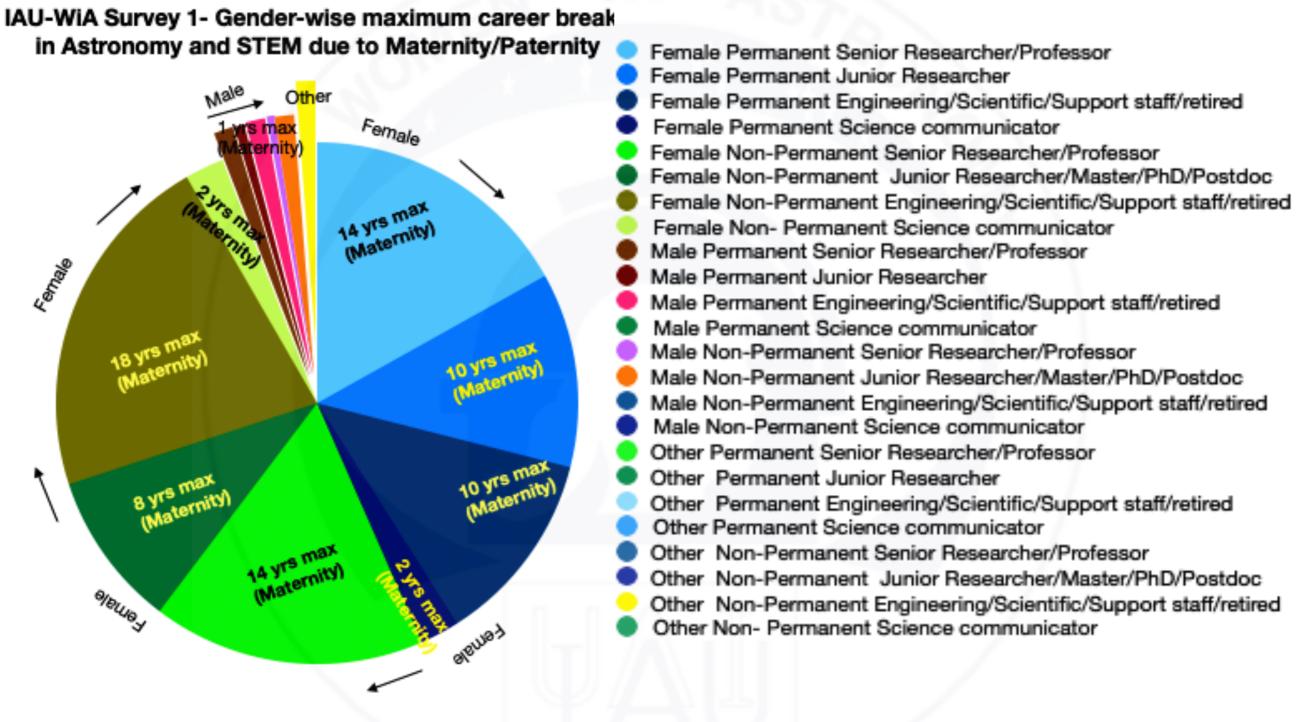


Fig. IAU WiA Survey Series-1 gender and career stage-wise distribution of participants

- -750 members participated
- -31% participants of this survey were women researchers in non-permanent position holding either Junior researchers, Postdoc, and PhD positions
- -17% female permanent senior researchers and 12% Junior permanent researchers.
- -A high proportion of women non-permanent junior researchers (31%) as compared to the men non-permanent junior researcher (10%) clearly indicates that at the graduate level women are actively engaged in higher academics, however as career progresses to a permanent (35+ yrs age) or senior researchers level (40+ yrs age), there are less non-permanent junior (10%) and senior (1%) men researchers whereas there are still a large proportion of non-permanent junior (31%) and senior (4%) women researchers who continue to work on fixed-term contracts.

Why this imbalance?



This unbalanced situation is mostly due to slow down in the career of women researcher at every promotion stage mainly due to child minding/family responsibilities (leading to reduced productivity) that may last from 2 up-to 18 years (max.), while it is <1 year for all the men researchers and women researchers with no children (ref. Fig. Below).

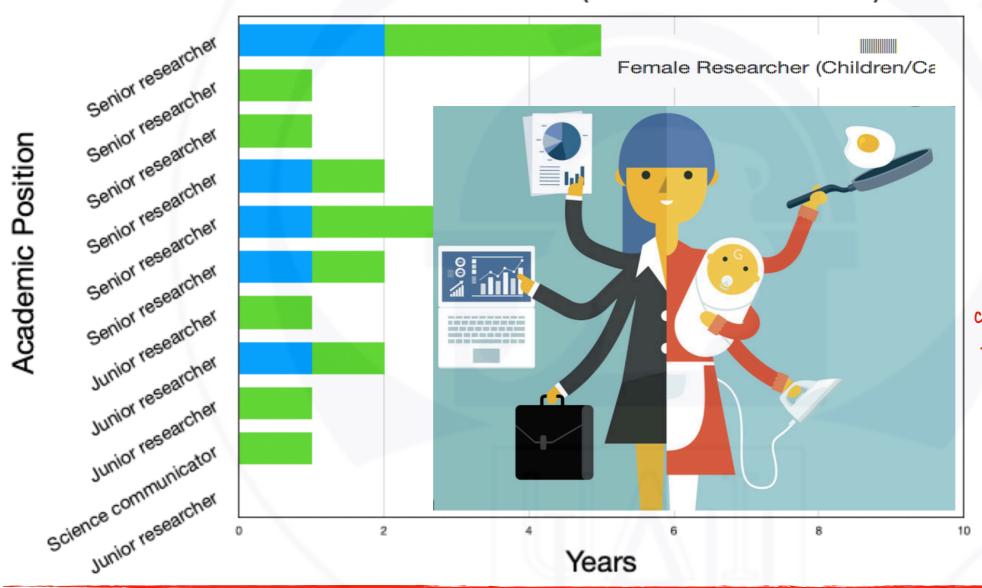
What are the other factors?

Participants (Lyon University, CAP2021-IAU, IFCAM) in the survey for 11th Feb International Day of Women and Girls in Science & 08th March International Women's Day 2021

Non permanent Mother researchers situation

- Multi tasking, not enough funds to bear added charges due to part-time CDD contracts
- Obliged to accept even under paid or unpaid contracts to support their career and family structure
- No time for networking due to added responsibilities

Female Researcher (Children/Career break)





Is there a lack of consideration or understanding consideration or understanding for the situation of MOTHERS!

Note-Women non permanent researchers have longer career breaks if they have more children

-Longer breaks unfortunately leads to biases in evaluation by hiring and funding committees & support for permanent positions -Difficulties for non-permanent Mother researchers to get fixed-term contracts nationally & internationally & discouragement!

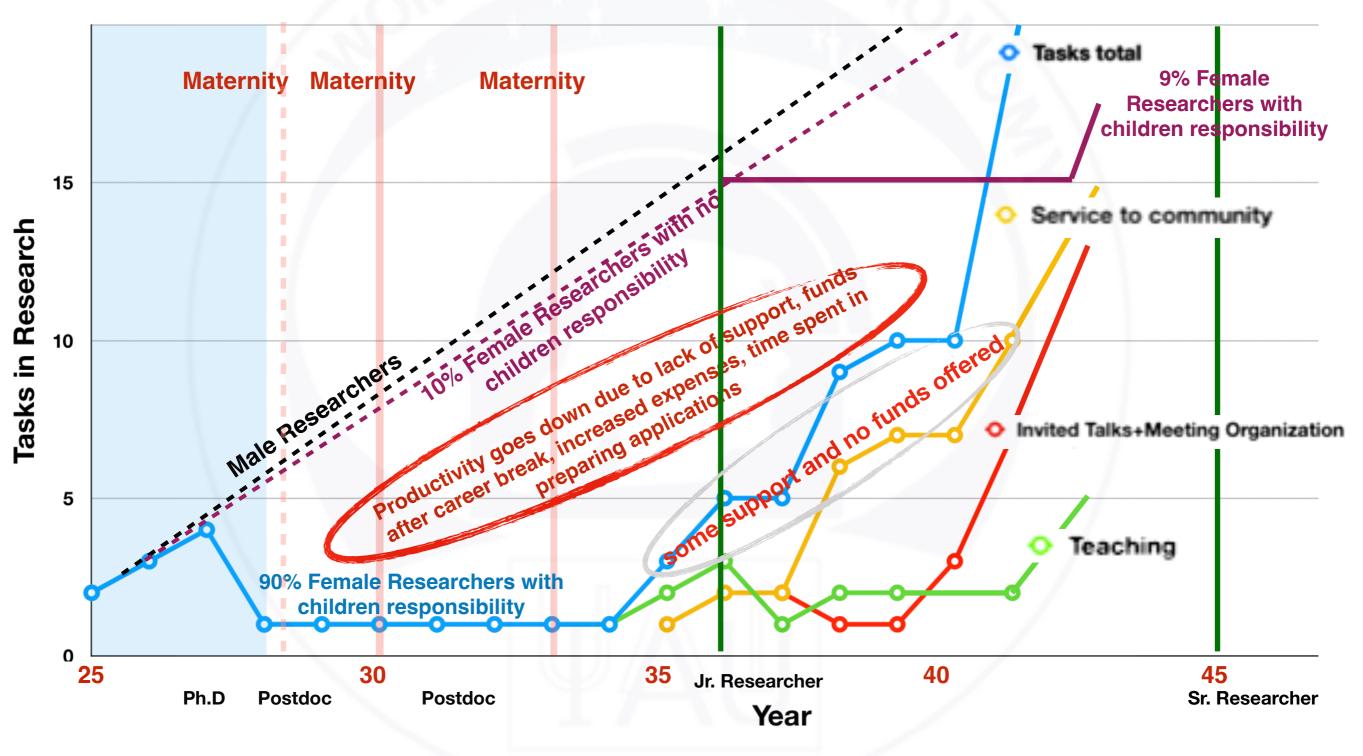


Fig. Ideal Career graphs for female and male researchers

PhD 5 yrs

55%M-45%F

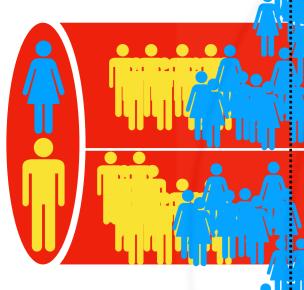
Postdoc 6-17yrs or more

75%M-25%F (90% are not supported- mostly Mothers)

Permanent position Jr. Researcher 8-10yrs

80%M-20%F

Sr. Researcher 95%M-5%F



opportunity to students (F/M) to enroll in STEM topics

Institutions recognition for practicing EDI and Gender Balance (GB) polícies

Institutions give equal institutions encourage equally postdoc applications & hires excellent candidates (F/M), GB is reduced

Mothers face bias & encouraged to take up part-time/low paid positions to maintain g et work-family balance-productivity depends enrollment fees and upon the part-time contract & salary

> Mothers may also accept to work full time and on unfunded positions, if they want to continue their career to increase productivity/GB or Quit if not supported

Institutions hires excellent institutions trying to candidates (F/M), GB is not achieve GB & healthy visible (50-50%)

Mothers face bias & not being hired enough, as they don't qualify the 'excellent candidates' criteria-part-time/ low paid positions

Mothers need support, funded position, flexibility to continue career & help maintain the GB

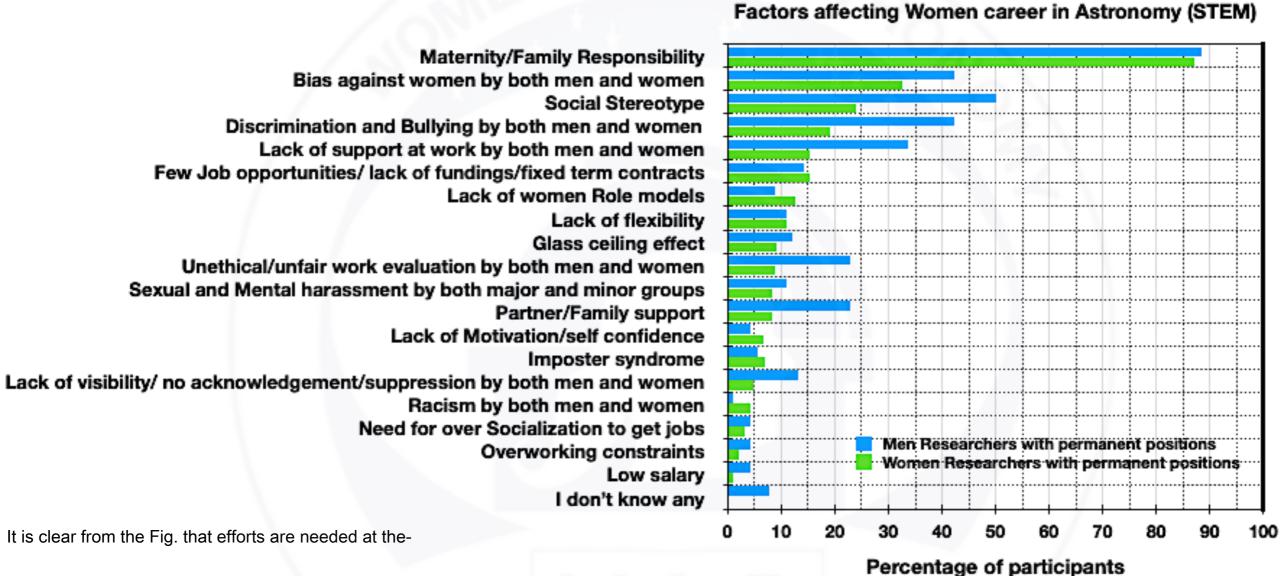
work environment

Female/Mothers should be provided funded <u>posítíon, flexíbílíty</u> hired, supported at <u>higher positions</u> as they can help achieve the Gender Balance & <u>healthy work</u> environment

M. Pommier

IAU Women in Astronomy WG activities and survey results

Aug 2022



- . Organizational/institutional/funding agencies new policies to support women's career with children responsibilities, equal parental leave, flexibility, fundings (especially to mothers).
- II. Better policies at the organizations to ensure healthy and safe working environment, to counter harassment (physical,mental), discrimination, racism, unethical and unfair work evaluations, suppression of women researchers work and visibility-perhaps every institution needs Women cell, EDI cells
- III. Hiring and funding agencies need to consider the merit of the candidates by scaling their productivity equivalent to 100% contracts, during evaluations. Apparently this information has a direct implication on the productivity and hiring possibilities of the candidates and is never asked in the application forms.
- IV. Women's career should be supported in STEM, especially 'Role models' at every career stage to secure their role and future in higher academics career in STEM.

Due to a lack of awareness, support, positions, and fundings (especially after maternity), the women researchers are often forced (advised) to leave academia leading to a gender gap in STEM fields and unhealthy work environment.

Factors affecting careers of male & female (without and with children) researchers



Fig. Factors affecting Female researchers career with no child minding responsibilities

Harassment
(Mental and Physical)

Competition Increased responsibilities at work

Social pressure
to take up permanent jobs
at earlier ages or change field

Fig. Factors affecting Male researchers



Fig. Factors affecting female researchers career with child minding responsibilities

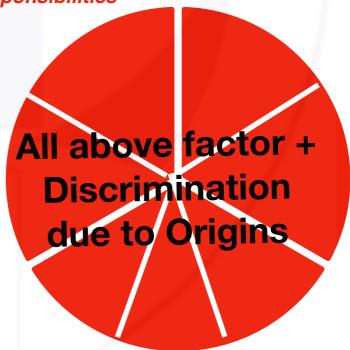


Fig. Factors affecting female researchers career with child minding responsibilities and colored skin

What are the ways under such conditions to sustain women's career and achieve gender equality at work place

career with & without children

EU Commission statistics on Gender Equality and Covid 19 impact on Women career

https://www.eurofound.europa.eu/publications/article/2021/workers-want-to-telework-but-long-working-hours-isolation-and-inadequate-equipment-must-be-tackled

INFOGRAPHIC

Gender equality and COVID-19



GENDER EQUALITY IS A FUNDAMENTAL RIGHT FOR EU CITIZENS AND A KEY PRINCIPLE OF THE EUROPEAN PILLAR OF SOCIAL RIGHTS

Employment and gender

The pandemic has disproportionately affected women in employment, leaving them feeling less optimistic about the future





Women are overrepresented among minimum wage earners in most **EU Member States**

Gender pay gap



Career advancement for women suffered more due to new working time arrangements



More women report fficulty in making ends meet during COVID-19

The gender pay gap persists at

14.1 % in 2019



Low-paid female workers in service sectors hit most by job loss



Working hours reduced more for women than men



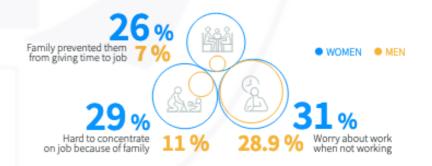
Young women more likely to lose their job than men



Higher volume of women workers in healthcare means

Work-life balance and teleworking

Increased teleworking during COVID-19 has escalated work-life conflict, particularly for mothers of small children



Gender employment gap 11.7 percentage points in 2019, costing the EU € 320 billion annually

What are the ways under such conditions to-sustain women's career and achieve gender equality at work place

What's next for gender equality?

Promoting gender equality is at the heart of the EU policy response to the COVID-19 crisis, in line with the Gender Equality Strategy 2020-2025

Problems and questions for the policy makers

- Only 21% women are IAU members, the situation is similar even at permanent position level is many countries
- Lack of role models, actions, and support at every academic position level in STEM
- Lack of proper funding (complete postdoc or fixed term researcher position) to support women career after maternity phase
- Lack of awareness, training, support (professional), encouragement
- Efforts also needed from institutes and Universities in hiring women at permanent researchers positions, especially with 10years + experience
- Very few enterprising (leading projects, having the resourcefulness, take initiatives to explore new opportunities, motivated to create opportunities for others) women in research
- How does it helps to increase the percentage of women in research and higher academics?
- Gender balance, role models, safe and healthy working environment, scientific and social development of the society
- Share the same vision as the UN, EU commission and many countries

Challenge-How to fix these long existing problems!

Careers of female researchers with children-Leaky pipeline effect in STEM & Actions needed

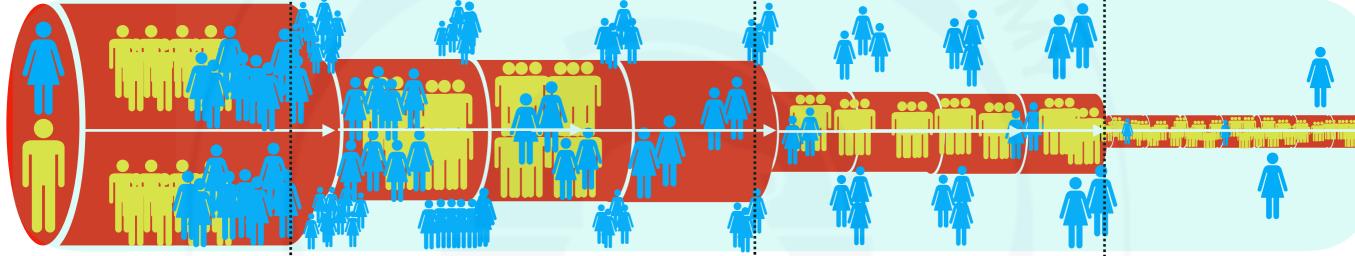
PhD 5 yrs

55%M-45%F

Postdoc 6-17yrs or more

75%M-25%F (90% are not supported- mostly Mothers) Permanent position
Jr. Researcher 8-10yrs
80%M-20%F

Sr. Researcher 98%M-2%F





Environment

Gender Imbalance

Efforts from the IAU WiA WG

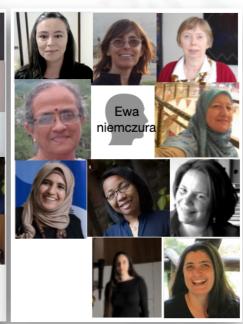
To add to the ongoing efforts by many countries to increase the percentage of women in research and higher academics, the new International Astronomical Union Women in Astronomy Working Group volunteers have following objectives













The current WG will highlight the difficulties (bias, reduced career prospects, leaky pipeline and lacking role models, childcare issues, harassment, discrimination, unfair working conditions) faced by Women in Astronomy, help bridge the gender gap in Astronomy and STEM fields, the careers of women researchers and young women Ph.D. students worldwide. To achieve these objectives, the four point work-plan has been put forward with a special focus on-

- (i) Awareness & Sustainability-Engage- Create awareness-Monthly Newsletters, activities, acknowledgement, ENSEMBLE Magazine, publication, regularly updated on the website -https://sites.google.com/view/iau-women-in-astronomy/home & Celebrating achievements, supporting activities to promote Women and girls in Astronomy, Work in collaboration with all the WGs of the IAU and international collaborators to sustain careers
- (ii) Training and Skill Building-Sustain train young students from school upto university level
- (iii) Fundraising and career retention-Recruit and retain-by providing financial support to retain careers at every level by Fundraising

Need funding to help career of Women in Astronomy at every stage!

(iv) **Dissemination and communication of results** via conferences, newsletters, etc.

IAU Supports Women Career in Research!

Efforts from the IAU WiA WG-

1-Awareness & Sustainability-from students, early career to senior level researchers



Efforts from the IAU WiA WG-Testimonials of working conditions of Women in Astronomy participants (Survey-1)

Below are a few feedbacks received from the participants-

'-If we still don't have equal representation after over a decade of programs to improve diversity, then obviously we need to try a lot harder. Our field is predicate on understanding statistics, and yet somehow we fail to apply that same scientific understanding to the lack of representation in our workplaces. It just astounds and depresses me.

-PAY US! There is no reason that we are forced to work more than double the time we are payed for, at less than poverty wages. Universities have complete ability to set minimum stipends, set benefits, and enforce ethical labor practices.

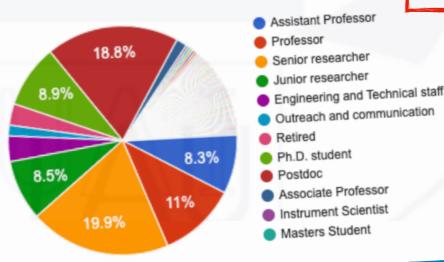
-Issues faced by women of color in STEM are worse and need to be addressed. In my experience, universities aiming to address diversity just focus on hiring white women. Being a women of color, I have faced discrimination and bias from both the genders.

-Universities and funding organizations need to actively support women for instance with child care and parental leaves. It is important that the evaluation committees take into account balancing work and personal life as a strength and to provide permanent positions at earlier stages of the career to avoid making females leave the field because the lack of stability / the obligation to move in different countries when working on fixed term contracts. Additionally, they have the ability to enforce policies that protect employees from working overtime without any compensation. They have to ability to create these policies. These types of groups have political and societal influence and literally choose to ignore our pay every single day.

-Like to address the issue of mental health, where I have known some issues while doing phd, the students may even lead to suicidal mentality and depression.

-Not all harassers are men. Some are women who either don't want to compete with other women in the field or who just have so much internal misogyny that they carry it through to their mentees.

Fig. 1 Career-wise distribution of the participants of IAU WiA survey-1 on the Working situation of Women in Astronomy.



Why are women (especially Mothers) Astronomers facing unfair working conditions in Astronomy?

Why are the institutions and hiring committees failing in their efforts to recruit Women Astronomers with several years of experience and to maintain gender balance at work place?

> Contactiauwia2124@amail.com

Efforts from the IAU WiA WG-1-Awareness & Sustainability-from students, early career to senior level researchers

IAU WiA WG reaching out to students from University to school level-Work in collaboration with all the WGs of the IAU and international collaborators

1. Promoting Girls and boys in STEM at the school level-Jointly organizing Women and Girls in Astronomy event and Draw and Astronomer contest with the IAU OAO office, Supporting the African Women in Astronomy Activities



Women and Girls in Astronomy

An IAU Outreach Global Project

Overview

The Women and Girls in Astronomy project recognises the role of women in advancing science and encourages girls to consider careers in astronomy. The International Astronomical Union (IAU) strongly encourages activities throughout the year, with a particular focus between two International Days adopted by the United Nations: the International Day of Women and Girls in Science on 11 February and International Women's Day on 8 March.

In 2022, the IAU Office for Astronomy Outreach (OAO) with the IAU National Outreach Coordinators (NOCs) will be supporting a number of virtual and in-person events to recognise the contributions of women and girls in astronomy between 11 February 2022 and 8 March 2022. Other OAO activities include an online campaign and a contest.

In this year edition of Women and Girls in Astronomy IAU Outreach Global Project, the OAO collaborates IAU Executive Committee Working Group Women in Astronomy, and thank them for their support and guidance.

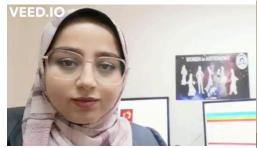












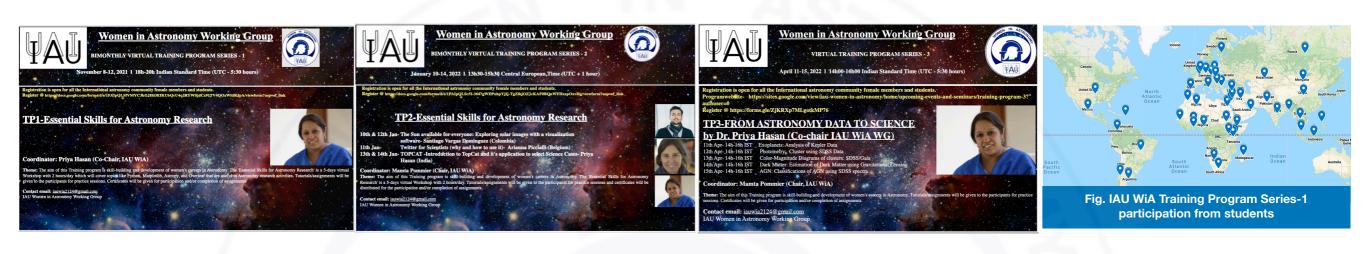






Efforts from the IAU WiA WG-

2-Training and skill building-from students, early career to senior level researchers



IAU WiA WG reaching out to students from University to school level-Work in collaboration with all the WGs of the IAU and international collaborators

- 1. Training programs for University and early career researchers-Training, mentoring in an unbiased and inclusive way-Regular seminar series and training programs.
- Promoting Girls and boys in STEM at the University level-

A summary of feedback received from these participants are as below-

- '-Thank you IAU WiA WG for the 2nd Training Program. I am glad that this 2nd program has addressed different topics.
- -I think topics such as time management would be very useful. Also, more sessions on programming techniques (Astropy) would be very useful to be a better researcher. Unfortunately, there is a culture in our world in which men are perceived as better programmers than women, so it can be difficult to have the necessary confidence to do a good job related with programming, and those lessons are helping to solve this problem in practice.
- -Thanks for conducting such an informative session. Looking forward for more such sessions. -This entire program is an excellent initiative by the IAU WiA WG. I'm looking forward to attending
- more such programs organized by you in the coming future.
- -These programs are helping us to improve our skills in research!'



Efforts from the IAU WiA WG-3-Dissemination and communication-for the whole community

News

Science

Publications

Administration

Training in **Astronomy** News / Announcements / The Sixth Issue of the IAU Catalyst is Now Available Online

ann22014 - Announcement

Home / Science / Scientific Bodies / Working Groups

Executive Committee WG Women in Astronomy

Documents

- WG Annual Report (2021-2022) Women in Astronomy
- Women in Astronomy Newsletter February-March 2022
- Women in Astronomy Newsletter January 2022
- Women in Astronomy Ensemble Magazine issue 1- December 2021
- Women in Astronomy Newsletter November 2021
- Women in Astronomy Newsletter October 2021
- Women in Astronomy Newsletter September 2021
- WG Triennial Report (2018-2021) Women in Astronomy
- WG Annual Report (2019) Women in Astronomy
- WG Triennial Report (2015-2018) Women in Astronomy



Click to Enlarge

In issue 6 of the IAU Catalyst, we can read our IAU President Debra Elmegreen's welcome speech at the XXXI Virtual General Assembly Business Meeting in August 2021. Mamta Pommier, the chair of the IAU Executive Committee Working Group of Women in Astronomy, presents the rejuvenated actions of the group. Hear from Director Piero Benvenuti, about the IAU Centre for the Protection of Dark and Quiet Sky from Satellite Constellation Interference. And more

As always, this issue also includes information on IAU publications, dates and deadlines

The Catalyst is issued twice a year, as an electronic-only bulletin. We hope you enjoy reading it and encourage both IAU members and the IAU wider community to get involved in future issues by submitting news and contributions about events or topics that you consider relevant to IAU members.

Previous issues of the IALI Catalyst are also available on the IALI website

More information

The IAU is the international astronomical organisation that brings together more than 12 000 active professional astronomers from more than 100 countries worldwide. Its mission is to promote and safeguard astronomy in all its aspects, including

Search www.iau.org

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About the Announcement

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Images



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1 of 5 January 2022 | Issue 4



IAU-WiA

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IAU Executive Committee Women in Astronomy Working Group Annual Report 2021-2022

Members

Mamta Pommier (Chair)

Priya Hasan (Co-Chair)

Daniela Lazzaro (Executive Committee Liaison)

Dara Norman (Advisor)

Alshaimaa Saad (Egypt) - Junior Member

Arianna Piccialli (Belgium)

David Valls-Gabaud (France)

John Leibacher (USA)

- I. Message from the Chair of the IAU-WiA WG (1)
- II. IAU WiA WG Training Program Series-2 on 'Essential skills in Astronomy Research' (2)
- III. Upcoming events-IAU WiA WG Special Seminar Series-2 on 11th Feb- International Day of Women and Girls in Science (3)
- IV. IAU WiA WG supports IAU OAO event on 11th Feb (3)
- V. Call for participation- IAU WiA WG activities, Survey on the impact of Covid-19 situation on the career of Astronomers, 8th March-International Women's Day (4)
- VI. Invitation to join the WiA WG as National Representatives and welcome to new members (5)
- VII.Thanks to the IAU offices for their support to the WiA WG activities (5)

Efforts from the IAU WiA WG-3-Dissemination and communication-for the whole community



Join us on the social media









Visitors from 78+ countries are following our activities!

https://sites.google.com/view/iau-women-in-astronomy/home?authuser=2



Efforts from the IAU WiA WG-

4-Fundraising and career retention-from students, early career to senior level researchers

- 1-3 attempts have been made by the WG chair for fundraising to support diverse research activities and career of Women in Astronomy worldwide, however it has been unsuccessful as of now!
- 2-Successful in getting research grant to support a PhD and a postdoc candidate! A women graduate students has been appointed for the PhD position!
- 3-WiA WG has initiated efforts at the IAU EC level to get funds to support the career of Women in Astronomy under 'STEM Ambassador' program, and we are hope for positive outcomes!

IAU Women in Astronomy



IOBS & FUNDINGS

The working group members and International astronomy committee supporting gender balance at work place and 'Women Career in Astronomy' are invited to send their job announcements to us. We will publish them on this page.

Announced by



IOB ANNOUNCEMENT

Research Associate and Junior Research Fellow Position under a Franco-Indian Project coordinated by Mamta Pommier

This is the 3rd project inline (CEFIPRA projects- 2015-2018- 5204-2, 2019-0236-Ref. no. 60-63/E, initiated (written, coordinated, and managed) by Dr. Mamta Pommier to strengthen Franco-Indian Scientific collaboration in Astronomy

'Gas Interaction and Non-thermal emission in galaxies and clusters' project

Submission Information: Publish Date- 1st May 2022

Application Deadline- 15th June 2022 Starting Date- 1st July 2022

Job Category:

(i) One Research Associate (RA) at Indian Institute of Astrophysics (IIA) (ii) One Junior Research Fellow (JRF) Position at Indian Institute of Science (IISc)

Institution/Company: Indian Institute of Science and Indian Institute of Astrophysics City: Bangalore State/Province: Karnataka Country: India

Announcement:

Applications are invited from Indian and French nationals for two positions, one Research Associate (RA) and one Junior Research Fellow (JRF), to work in India on the Franco-Indian research program- 'Gas Interaction and Nonthermal emission in galaxies and clusters' project, funded by the CEFIPRA grant over 3 years. The position is for a period of two years (1+1 year), with a possible third-year extension based on performance. The Fellowship

Efforts from the IAU WiA WG-Working hours and consequences of the activities!

1-The IAU WiA WG members are unpaid volunteers working for the whole community

- 2-The active members are mostly part-time or under-paid researchers with no permanent position and in vulnerable stage of their career
- 3-These activities were not carried out actively in the past and it took almost 1 month of working time (and of course equivalent salary)
- 4-We have been applying for funds but there are no schemes to fund these activities which are needed at the work place and represents 1/2 of the working population
- 5-To support the career of Women in Astronomy we ask IAU, funding agencies and institutions to support 'STEM Ambassador' program to carry out such activities and personal research under paid conditions and provide longer term funding support at different career stages (no age limit barriers!) to Women Astronomers

We are hope for positive outcomes!



Problems and questions for the Institutions, Universities, and policy makers

Problems and Question Raised for Experts-

- If there are no efforts in hiring women researchers or very less permanent positions, then how to encourage young women to take up career in research?
- Gender imbalance gives rise to unhealthy and unsafe working environment
- Issues of harassment, bullying, exploitation, and mental health is increasing in institutions at alarming rates
- How to tackle high competition and conflict of interest problems at work place?

Solutions-

- Merit based evaluation to avoid discrimination, bias and tackle harassment
- Evaluate productivity based upon the contract working hours (full time, part-time)?
- Efforts needed to increase positions for women in Astronomy
- Efforts needed to hire senior women researchers (PhD+10yrs and above, mothers) equally!
- Efforts needed to appoint non-permanent senior women researchers at decision making positions equally
- Need for gender balance, EDI cells at institutions and funding agencies to monitor progress and help to maintain healthy and productive working environment

Participate in the online survey-SURVEYS and Feedback

All the participants are invited to-

1-provide their valuable Feedback on the IAUGA 2022 WiA WG session at-

https://forms.gle/Pmfyy1rPWjL4YDMo6

2-Take the survey on 'The Impact of Covid19 on the career of Astronomers at-

https://forms.gle/CboPUxVjP8CZsqAy8'





