

ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions



Our Collaborating Universities:













Our Partner Institutions:

























1. INTRODUCTION

ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions (ASTRO 3D) aims to ultimately produce a comprehensive picture of the evolution of matter, the chemical elements, and energy in the Universe from shortly after the Big Bang to the present day. ASTRO 3D merges world-leading Australian and international optical, infrared and radio telescope technologies with sophisticated theoretical simulations and ambitious new big data analysis techniques to open a new realm in astrophysics - a 3D understanding of the origins of the Universe and our place within it. Through the Centre, the next generation of scientific leaders will be trained within a cohesive, national and international framework that includes cutting edge science and data intensive infrastructure, nationwide and worldwide collaborations, leading equity and diversity programs, and large-scale public education and outreach programs

ASTRO 3D is comprised of nine collaborating universities — the Australian National University, the University of Melbourne, the University of Sydney, Swinburne University of Technology, the University of Western Australia, Curtin University, Monash University, Macquarie University and University of NSW— and a number of world-class Australian and international partners, including:

- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- National Computational Infrastructure (NCI)
- California Institute of Technology, USA (Caltech)
- University of Washington, USA (UW)
- University of Toronto, Canada
- Netherlands Institute for Radio Astronomy (ASTRON)
- Heidelberg Institute for Theoretical Studies (HITS)
- Chinese Academy of Sciences (CAS)
- University of Oxford, UK

The Centre began in July 2017, and has been funded over seven years with a \$30.3M grant from the Australian Research Council (ARC), \$8.4M in cash from the six Australian universities and \$144M of in-kind resources from the collaborating and partner institutions.

As of 13 February 2019, the Centre had 192 members including 13 Chief Investigators, 14 Partner Investigators, 71 Associate and Affiliate Investigators, 6 Research Fellows, 20 Postdoctoral Researchers, 54 PhD, Masters and Honours students, and 14 Professional Staff. Of these 192 members, 38% are female.



Between August 2018 – December 2018, Centre Director Lisa Kewley chaired the ASTRO 3D Diversity and Inclusion Working Group. The Diversity and Inclusion Working Group assisted the Director with the development of goals, strategies and activities that promote diversity and an inclusive, supportive, and welcoming culture within the Centre. The Diversity and Inclusion Working Group discussed:

- The Centre values and culture that we wish to build, and strategies to meet our value and culture goals.
- Behaviour that we want to encourage and model within the Centre, and strategies to encourage such behavior.
- Behaviour that we want to discourage in the Centre and strategies to discourage such behavior.
- Subconscious biases that we need to be aware of and strategies to help our Centre members overcome these biases.
- Actions that the Centre should take to promote inclusivity in the Centre
- The composition and size of the Diversity and Inclusion Committee required to help the Director and the Executive meet our value and culture goals.

Separate discussions on our ideal values, culture and behaviour were led by the Director at the Executive Management Committee Meeting and with around 80 Centre members during a dedicated discussion session at the ASTRO 3D Strategic Planning retreat in Perth. The results from these discussions form the basis for the values, culture, and behaviour that we aim to achieve through this Action Plan.

2. VALUES, CULTURE, AND BEHAVIOUR

ASTRO 3D will be based on the following values:

Honesty, Trust, Transparency, Respect, Diversity, Fairness, Inclusion

We will achieve a Centre that reflects these values by maintaining honest, inclusive, and respectful working relationships based on trust and mutual respect for each other's contributions to the Centre, regardless of employment status, gender, ethnicity, religion, sexual orientation, or disability.

ASTRO 3D aims to achieve a culture that is

Collegial, supportive, nurturing, professional, engaging, empowering, and inclusive.

We will achieve this culture by providing a safe open environment that is supportive, fair, and respectful of the opinions, thoughts, and beliefs of all people in the Centre. The Centre will nurture centre members to help them succeed in their goals. The Centre will achieve scientific excellence while at the same time encouraging wellness and an understanding that we are all people with different goals and needs both within and outside the work environment.

Behaviours that we wish to encourage and strengthen in the Centre are

• Open, honest, and timely communication. Communication is critical to the success of any large organisation. Open and honest communication includes reflecting on how we as a community communicate amongst ourselves and with the general public and our stakeholders. We will strive for open, honest, and timely communication within our team and with the general public.



- Active listening and learning. We aim to develop an atmosphere where every person's opinions are given equal weight, regardless of gender, ethnicity, religion, sexual orientation, employment status, socio-economic status, or disability.
- Treating people as individuals. Seeing people as individuals is a proven method of helping overcome implicit biases. We are all individuals with different needs and goals. These different needs and goals will be a focus of our mentoring program, and will be highlighted in our regular email updates.
- Compassion. We will encourage compassion in our interactions with people, in person, in email, and on Slack and other social media platforms.
- **Understanding.** Understanding our personal tendencies and biases, and improving our behaviours based on an understanding of our biases is critical to overcoming implicit bias. Building this understanding and improving our behaviours is an ongoing task that needs to be run throughout the lifetime of the Centre.

3. RECRUITING AND RETAINING A DIVERSE TEAM

Participation from women and other minorities in Australian Science, Technology, Engineering, and Mathematical (STEM) fields remains low from high school through to the academic levels. We all have implicit (subconscious) biases that affect all levels of our decision-making. Research shows that the same application materials of a PhD student for a laboratory manager position are rated as significantly more competent, more hireable, and more able to mentor younger staff when the name of the application is changed from a female name to a male name^a. Similar results are found for judgements of job applications across all science areas^{bcd}, as well as in judgement of scientific publications^{ef} and telescope proposals^g. In these studies, both males and females exhibit bias against female applicants and publications.

A recent meta-analysis of the effectiveness of diversity training programs shows that single diversity training sessions do not produce long-term change^h. Immediately after the training, people only change their beliefs and behaviours for a short period of time, but do they acquire and retain knowledge. As time passes, people remember the new knowledge, but their beliefs and behaviours revert back to their beliefs and behaviours prior to the training. A sustained approach consisting of regular education sessions, and other ongoing diversity-related initiatives alongside the training is required. We adopt this approach in our Action Plan through regular professional diversity training sessions, discussion sessions, and the development of workshops to be conducted regularly at each node that are based on people's experiences in astronomy, both within and outside the Centre. The impact of these programs on our workplace climate and culture will be gauged via post-session feedback questionnaires, as well as through our annual Centre-wide Climate Surveys.

We seek to attract a diverse range of applicants for our PhD, postdoctoral, administration and Level C/D positions. Studies show that gendered wording in job advertisements exists and that this wording sustains gender inequalityⁱ. In particular, advertisements for jobs in male-dominated fields have been shown to contain male gendered language that discourages applications from female candidates. On-line resources now exist to test job advertisements for gendered language. Through our Diversity and Inclusion Committee, we will investigate the text used in our past and current job advertisements for gendered language and develop new wording templates to be used in all Centre advertisements that are gender neutral.



Attracting a large pool of diverse applicants requires additional efforts. All hiring committee chairs must actively solicit and encourage applications from a diverse group of people nationally and internationally both through direct contact and through indirect contact, such as requesting for diverse applicants by utilizing large networks (e.g., collaborators, mailing lists, directors of leading Centres and Institutes world-wide). Centre students, postdocs and other ECRs will be prepared for applications through workshops and training sessions on preparing CV and cover letters, proposal writing, preparing for interviews, selecting and priming referees, how to highlight other skills and experiences which people value, including skills and experiences valued in different cultures.

Candidate selection for Centre positions needs to include actions to mitigate implicit bias. All Centre job selection committees will be educated in the impact of implicit biases on job application ranking and how to overcome these biases prior to reading applications. A clear set of selection criteria will be identified by the committee prior to reading applications. ASTRO 3D short-lists are required to be 50:50 male-female wherever possible. Committees will be reminded of their important role in overcoming implicit bias prior to interviewing candidates, as well as the importance of using gender-neutral wording during interviews and post-interview discussions. At the end of the discussion of candidates, the chair and committee will discuss how they overcame implicit bias and identify areas for improvement for future Centre hires. The outcomes of this process will be compared with the outcomes of previous hiring rounds within the Centre and at the universities to assess the impact of implicit bias awareness and active mitigation on job hiring processes.

Retention of a diverse cohort is essential to the future success of Australian astronomy. Research shows that people in minorities require a safe workplace environment in which they can practice new leadership skills and share personal stories of challenge and vulnerability without having to hold up the role model position as the "first" or "only" leader. Being among a community of other accomplished leaders from minorities enhances the sense that "If they can do that, so can I". To improve retention of researchers within our Centre, we will build a culture of openness, with a focus on compassion, understanding and individuality. We will accomplish this through discussion sessions at Centre-wide retreats, meetings, busy weeks, and workshops, as well as a continued focus on personalizing the Centre through the "We are People" section of the Director's email updates and monthly video conferences. To improve retention in astronomy outside our Centre, we will research the causes of people leaving the field of astronomy, and develop strategies in collaboration with node universities to improve retention of a diverse cohort in astronomy careers.

Succession planning and promotion of a diverse group of people into leadership levels is critical to the success of our Centre. The McKinsey "Delivery through Diversity" Report^j showed a statistically significant correlation between greater levels of diversity in company leadership and a greater likelihood of outperforming the relevant industry peer group on a key financial performance measure, profitability. It is reasonable to infer that greater levels of diversity will also produce a greater likelihood of outperforming our competition in astronomy key performance measures in publications and education/outreach. A minority leadership program and an emerging leaders' program will target minorities and ECRs respectively to nurture and enhance leadership skills. These programs will recognize that there are different types of leaders and leadership may be expressed in different ways, including leading by example, leading by engaging, leading by persuasion, among others. Our leadership programs will aim to help people develop their own natural leadership styles, rather than applying a "one size fits all" strategy.



4. THE DIVERSITY AND INCLUSION ACTION PLAN

ASTRO 3D seeks to ensure that every person in the Centre has the opportunity and support to reach their full potential.

The Centre is committed to diversity in all of its forms and aims to ensure that we:

- celebrate and value diversity;
- create a fair and respectful workplace culture; and
- build and retain diverse capabilities and experiences.

Equality in the workplace is achieved when all employees are able to access and enjoy the same rewards, resources and opportunities regardless of employment status, socio-economic status, gender, ethnicity, religion, sexual orientation, or disability. The primary aim of this plan is to develop a workplace culture where all staff feel valued and included irrespective of employment status, socio-economic status, gender, ethnicity, religion, sexual orientation, or disability.

This Diversity and Inclusion Action Plan focuses on areas of greatest need, with the intention of embedding the values of honesty, trust, transparency, respect, diversity, fairness, and inclusion, and associated behaviours as part of a defined and communicated culture. To achieve this, the Centre will focus on:

- establishing and promoting the business case for diversity and inclusion equality,
- improving gender composition and balance; and
- embedding flexibility and diversity into the Centre's culture, encouraging collaborative solutions to individual needs where practicable.

To address the Centre's unique challenges and embed diversity and inclusion into the culture, we will undertake a range of specific actions. These actions will be implemented through a user centred design approach which will see members at all levels brought into the implementation process wherever possible, either through the Diversity and Inclusion Committee, other representative Committees or via the ASTRO 3D Intranet and/or Slack Channel.



DETAILED ACTION PLAN

OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
Workforce/Membership Profile			
Ongoing mitigation of systemic implicit bias	 Undertake implicit bias, diversity and inclusive work practices training Develop new training sessions based on experiences of centre members and the broader community Increase participation rates in implicit bias training throughout the Centre timeframe Include people from diverse backgrounds in all selection panels 	 Implementation by end 2019 Ongoing training after 2019 	 Annual climate survey Publish outcomes by gender and other diversity measures Monitor participation rates in training programs
Increase applications from people from diverse backgrounds for PhD, postdoctoral and staff positions	 Proactively engage our partner institutions in recruitment activities to encourage a diverse pool of selection panel members and applicants Ensure that the text of all job advertisements are gender neutral Every position description to reflect part time options Every position description to encourage applicants from diverse backgrounds Develop strategy for improving diversity in the PhD student pool in consultation with node universities. 	Implementation for 2019 recruitment Review annually beginning in 2019 PhD recruitment strategy to be developed and implemented by 2020	 Quarterly reports to the Diversity and Inclusion Committee and Executive Management Committee Job advertisement text containing gender neutral language with professional language tests Publish recruitment outcomes by gender and other diversity measures, including ethnicity and socio- economic status. Annual reports to the Centre at the Annual Science Meeting Annual reports to the International and National Advisory Boards
Recruitment management practices to drive diversity and inclusion	Recruitment processes to include Selection committee to be 50:50 male:female, and including other forms of diversity such as ethnicity and background implicit bias and stereotype threat training for all selection panel members training of chairs of recruitment committees to champion fair and equitable recruitment processes proactive discussion of implicit bias prior to application review and interviews	Implementation for 2019 recruitment Review annually beginning in 2019	 Annual climate survey Diversity and inclusion is embedded into the ASTRO 3D Strategic Plan and all policy documents Application shortlists and selection outcomes reflect diversity of background and experience



OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
	 all panels asking '50:50—if not, why not?' for gender balance on shortlists 		
	 post-interview discussion by panel on `have we done everything we could to overcome implicit bias?' and identification of aspects of the process that can be improved in future 		
Retention management practices to maintain diversity and inclusion	 Ensure learning and development opportunities are offered to all centre members Ensure that a range of social activities is offered at each node and at meetings/retreats to help team-building and creation of support networks Diversity and Inclusion discussion sessions at Centre-wide retreats, meetings, busy weeks, and workshops Ensure everyone has access to high quality mentoring Ensure every Centre member has access to mental health and wellness training programs Conduct anonymous exit surveys Research reasons why people leave the astronomy profession in Australia, and developing retention strategies based on the outcomes of 	 Implementation in 2019 and 2020 Review annually beginning in 2019 	 Retention to be monitored and reported annually to the Diversity and Inclusion Committee and the Executive Management Committee Annual reports to the Centre at the Annual Science Meeting Annual reports to the International and National Advisory Boards Annual climate survey
Collect data to provide management focus on diversity and inclusion	 Create a data framework that analyses and reports on gender equality and other diversity measurements, including the following ARC KPIs: % of females at all levels of the Centre (30 % in Year 1, increasing to 50% by Year 7) % of travel funds awarded to females (at least 30% in Year 1, increasing to 50% by Year 7) 50% of visitors and speakers are female 	Implementation by end 2018	Data informs reporting to the ARC Reporting informs the development and implementation of workforce strategies
Workplace Culture	,		
Establish an Equity and Diversity Committee to progress implementation of the Action Plan	Committee established with agreed terms of reference and meetings scheduled	December 2018	Committee meets monthly



OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
	Committee composition to be representative of the diversity within the Centre, including (but not limited to) age, employment status, gender, sexual orientation, ethnicity, religion, and disability	Reporting ongoing from 2019	Committee to report to the Executive Management Committee quarterly Committee to report to the Centre annually at the Annual Science Meeting Committee to report to the International Advisory Board and the National Advisory Board annually Strong awareness of the work of the Committee, including the Gender Action Plan, across all levels of the Centre
Ensure gender equality is a Centre objective and communicated to all stakeholders	 Publish this Diversity and Inclusion Action Plan on the ASTRO 3D website and on the ASTRO 3D Slack Workspace Report on progress and publish annually to the ASTRO 3D website Provide forums for managers to discuss inclusive workplace behaviours Regular communications to show support, clearly and publicly, for an inclusive workplace 	Ongoing	 Publish outcomes by gender and other diversity measures Engage with stakeholders on our Diversity and Inclusion Action Plan through seminars and individual discussion sessions.
Leaders champion diversity and inclusion	Leaders "walk the talk" by: being credible, trustworthy supporters of a gender balanced, diverse, and inclusive Centre; delivering well-articulated and congruent messages about gender balance, diversity, and their commitment to it; using persuasive power to change the minds of peers; and implementing the actions articulated in this Plan. Performance Plans at each node university reference the importance of inclusive behaviours Implement awards that reward inclusive behaviours and diversity	Ongoing	 Annual climate survey Quarterly reports from leaders, postdoc, and student representatives to the executive Annual reporting to the Advisory Boards with concrete actions on how leaders are championing diversity and inclusion Director node visit discussion sessions with each cohort Awards presentation at Annual Retreat
Embed flexible work practices in the ASTRO 3D culture	Review roles and challenge assumptions about how work should be done and how jobs are designed Put in place steps to ensure flexible work arrangements are not detrimental to employees' career progression	Ongoing	 Annual climate survey Monitoring of timing of ASTRO 3D seminars, colloquia and other meetings



OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
	 Managers support the choices of Centre members about their work arrangements Ensure family friendly hours for ASTRO 3D seminars, colloquia, and other meetings are being achieved at ASTRO 3D nodes. Influence nodes to change departmental seminars, colloquia and other meetings to family friendly hours 		Monitoring of timing of departmental seminars, colloquia and other meetings
Create a supportive culture and work environment	 Establish equity and diversity mentoring groups that bring together women, racial minorities, sexual minorities (e.g., gay, lesbian, bisexual, and transgender) and people with challenges that affect their ability to conduct full time research, such as illness or disabilities Ensure that all Centre members are aware of, and can access, the support services available at each university including those affected by domestic violence, those who identify as Aboriginal and Torres Strait Islander, CALD or LGBTI and staff with a disability Ensure leaders value the contribution of people with a wide range of work styles 	Ongoing from end 2019	 Annual climate survey Monitoring progress of mentoring groups through feedback sessions and anonymous feedback forms
Meetings and conferences are family friendly and inclusive	 Child care is offered at all conferences Support is provided for travelling to conferences with children Core meetings are not scheduled prior to 10am or after 2pm and whenever possible, are not held in school holidays Meetings are planned with due consideration of cultural sensitivities and with consideration to staff in different time zones Centre-run workshops and conferences to provide a prayer/meditation room, wherever possible In relation to Centre-run workshops and conferences, females represent at least 50% of: delegates Science Organising Committee members Local Organising Committee members 	• By end 2019	 Workshop and Conference organisers to report to the Executive Management Committee on diversity of committees, attendance and speakers as well as effectiveness of inclusion practices organised. Workshop and Conference Feedback forms Annual climate survey



OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
	 session chairs invited speakers contributed speakers keynote speakers 		
Work towards achieving a PLEIADES AWARD	Review the Centre's readiness to meet the PLEIADES AWARD criteria (The Pleiades Awards are bestowed by the ASA Chapter for Women in Astronomy and recognise organisations in Australian astronomy that take active steps to advance the careers of women through focused programs and strive for sustained improvement in providing opportunities for women to achieve positions of seniority, influence and recognition)	Ongoing	 Report to be provided annually by the diversity and equity committee Pleiades Award won by the Centre before end of the Centre
Ensure that unwanted workplace behaviour is dealt with swiftly and fairly	 Review node and CSIRO HR policies on unwanted workplace behaviour including bullying and harassment Develop plan for reporting and dealing with unwanted workplace behaviour across nodes and across partner institutions, including direct anonymous reporting Install astronomer and non-astronomer ombudspersons and provide these people with each institution's HR processes and training on the Centre plan for reporting and dealing with unwanted workplace behaviour Publicise action plan and role of the ombudspersons to all Centre members 	Work to begin in 2019	 Nodes to report on bullying and harassment policies, procedures to the Equity and Diversity Committee Nodes to report statistics of unwanted workplace behaviour and outcomes at each node for Centre monitoring and action where needed. Monitoring of number of reports to the Ombudsperson, actions taken, and progress through the HR processes of the departments involved. Feedback from individuals on swiftness and effectiveness of process (including via an anonymous feedback form).
Valuing the Workforce			
Acknowledge and celebrate the achievements of all Centre members, both internally and externally	 Set up an Awards Committee composed of a diverse range of Centre members to spearhead and coordinate nominations for national and international prizes and awards. Awards Committee to: Nominate a diverse range of Centre participants for prizes and awards Ensure that nominations include all minority groups in the centre, including 50:50 female:male. 	• By end 2019	 Fraction of women and other minorities in the Centre winning awards and prizes. Number of communications acknowledging the achievements of women and other minorities



OBJECTIVE	ACTION	TIMEFRAME	MEASUREMENT
Increase representation of people from minorities and diverse backgrounds, including women, in leadership roles	 Provide targeting leadership training and mentoring to high performing staff Consciously consider diversity when forming task forces or deciding on opportunities for high profile roles Provide Career Advancement Programs for careers both within and outside astronomy including seminars and workshops on CV preparation, self-assessment, job application preparation, interview practice and academic level promotion application and interview advice as well as seminars/presentations from women in key roles describing their own experiences 	• By end-2019	 Annual climate survey Publish outcomes by gender and other diversity measures Quarterly reports to the Equity and Diversity Committee and Executive Management Committee Monitor participation rates in training programs
Evaluation			
Annual review of the achievement of targets in this Diversity Action Plan	 Equity and Diversity Committee to review implementation progress on diversity and inclusion targets annually Equity and Diversity Committee to recommend interventions to address missing targets with further reporting to the Executive Management Executive Management Committee to ensure that interventions take place and are reviewed annually Feedback from all levels of the Centre from surveys, Annual retreats, and anonymous feedback to be included in annual reviews Where Diversity Action Plan targets are not being met, the Executive and the Equity and Diversity Committee will discuss underlying causes, with input from Centre members Action plan to be refined as necessary, including but not limited to the addition new initiatives that are achieving success in other workplaces. 	By end-2019 Ongoing from 2020	 Annual climate survey Publish outcomes by gender and other diversity measures Quarterly reports to the Equity and Diversity Committee and Executive Management Committee Monitor participation rates in training programs



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